

(No Model.)

2 Sheets—Sheet 1.

H. G. ZOSCHNICK.
HAND ELEVATOR.

No. 482,054.

Patented Sept. 6, 1892.

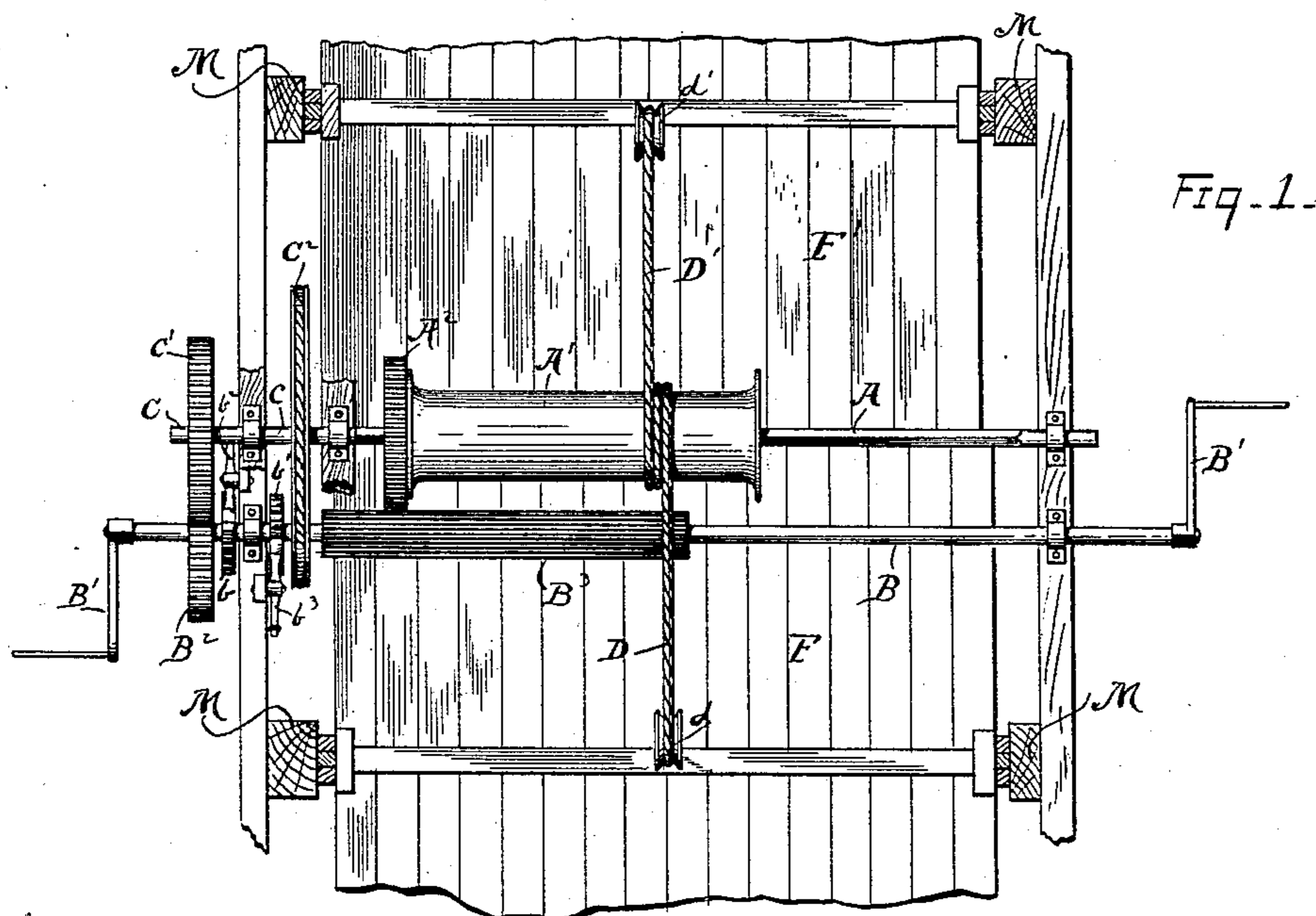


Fig. 1.

Fig. 2.

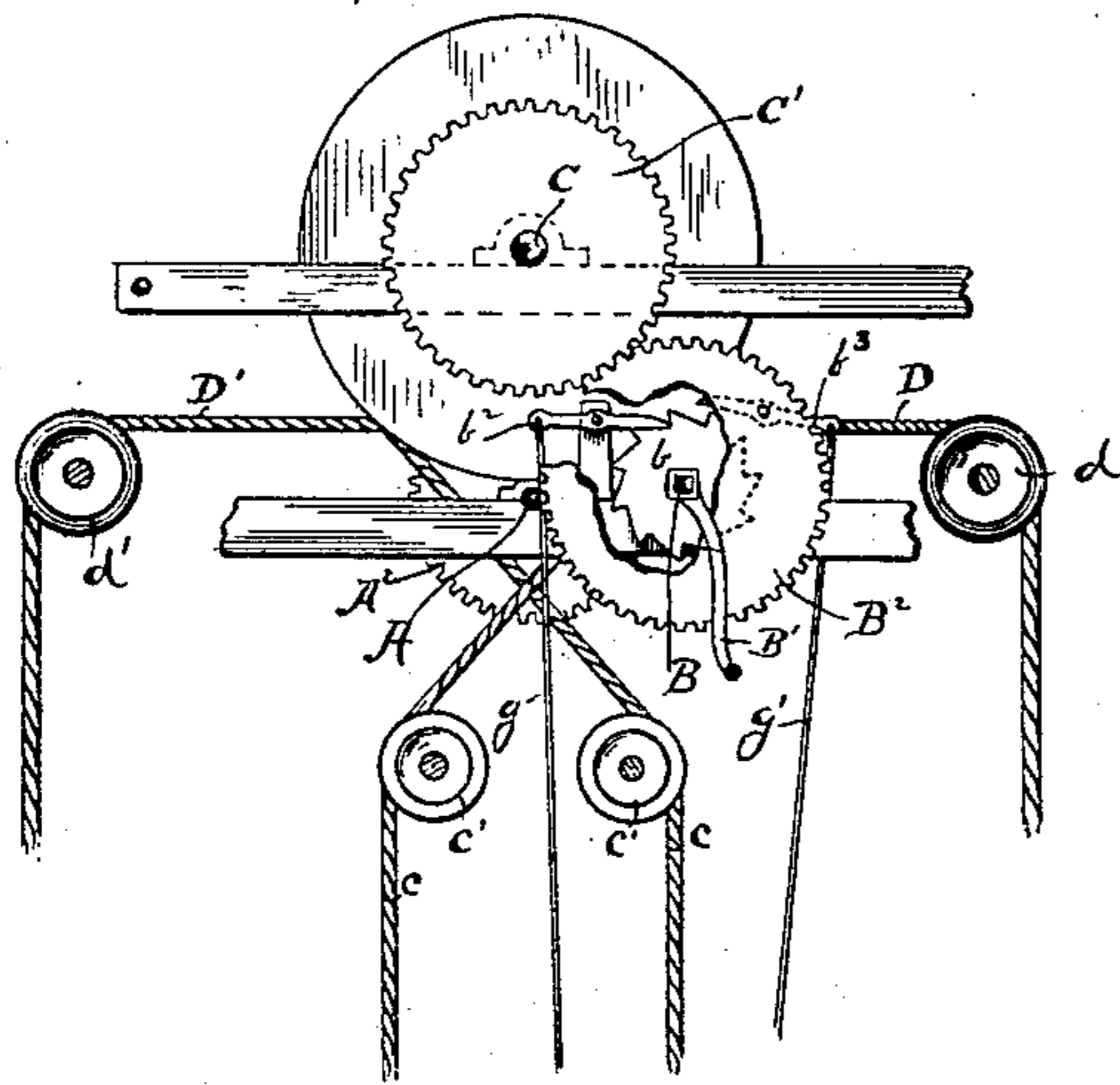


Fig. 3.

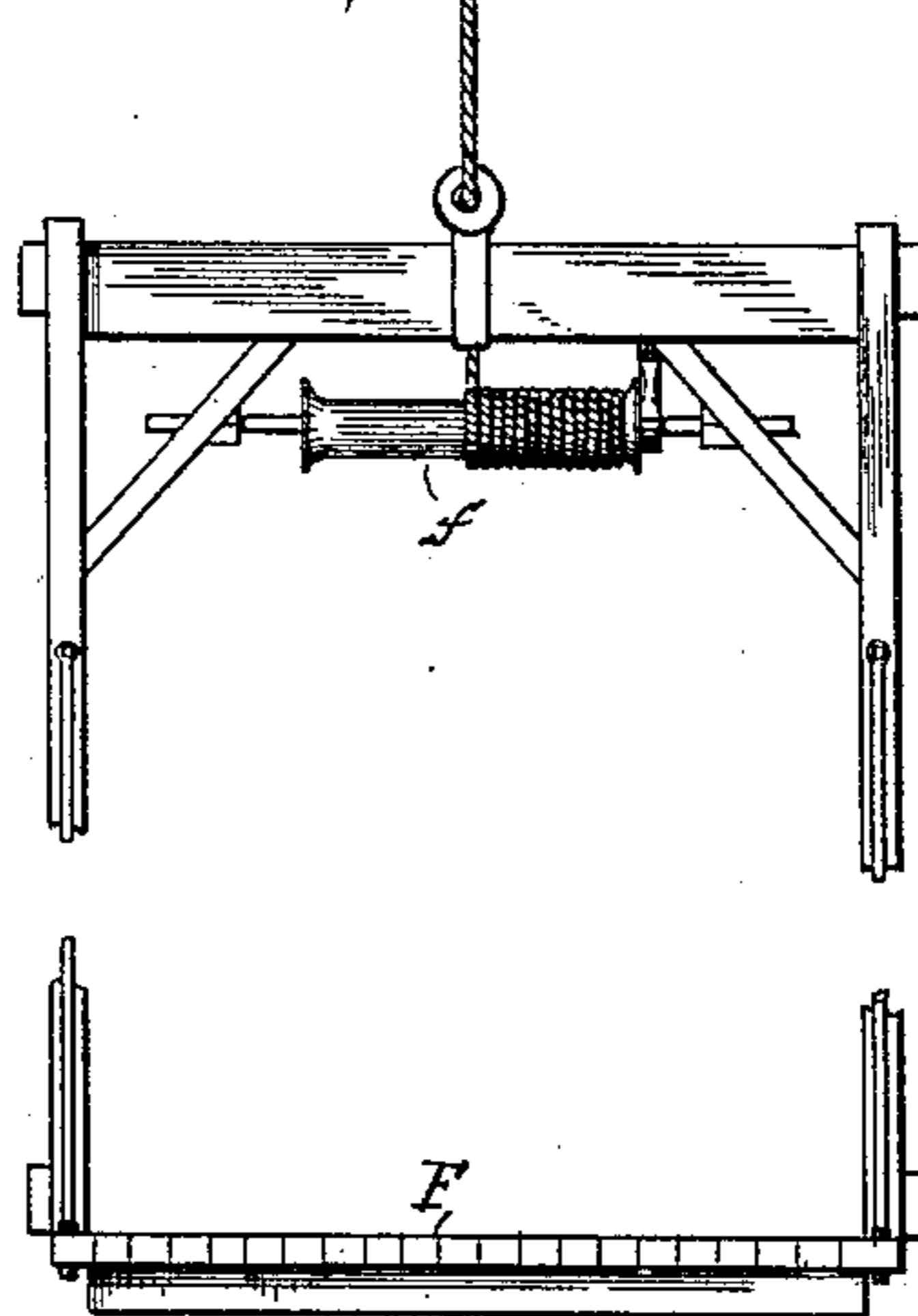


Fig. 4.

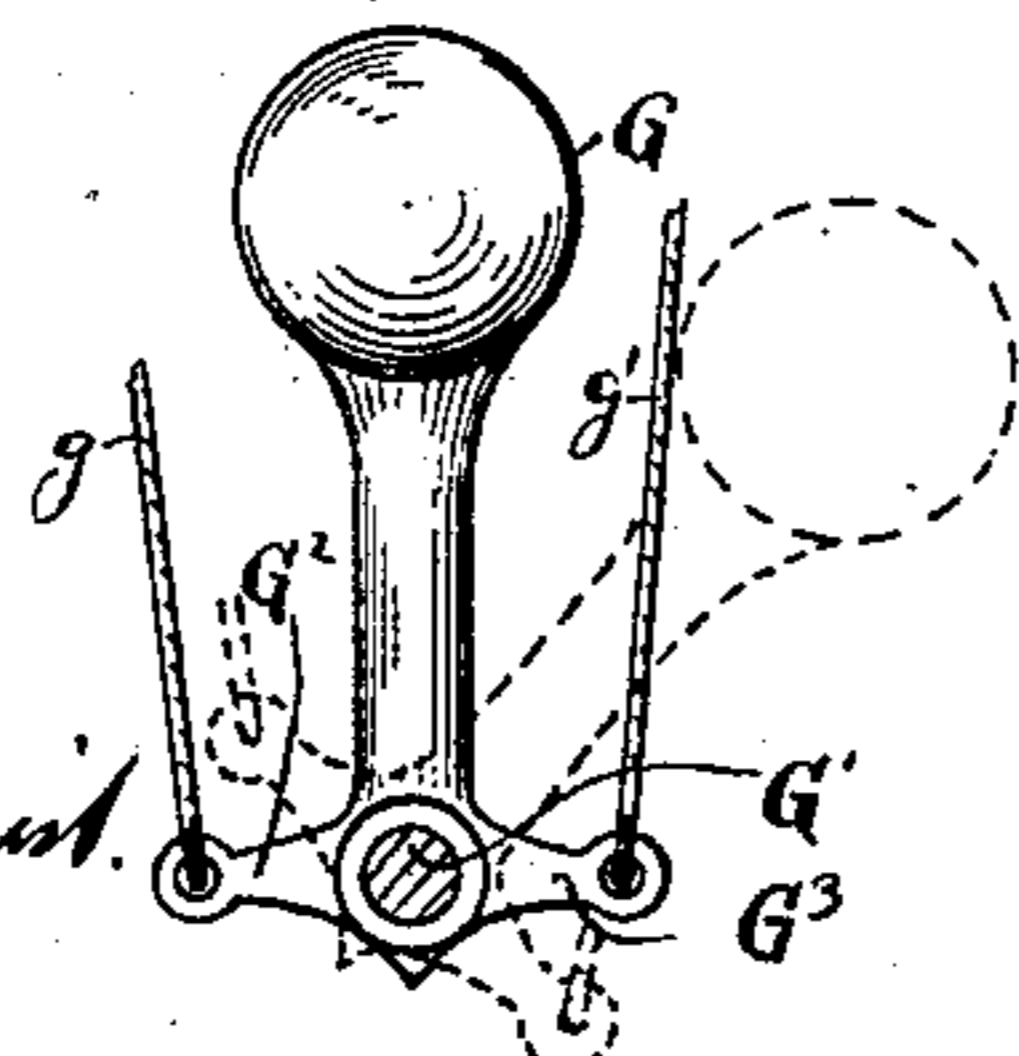
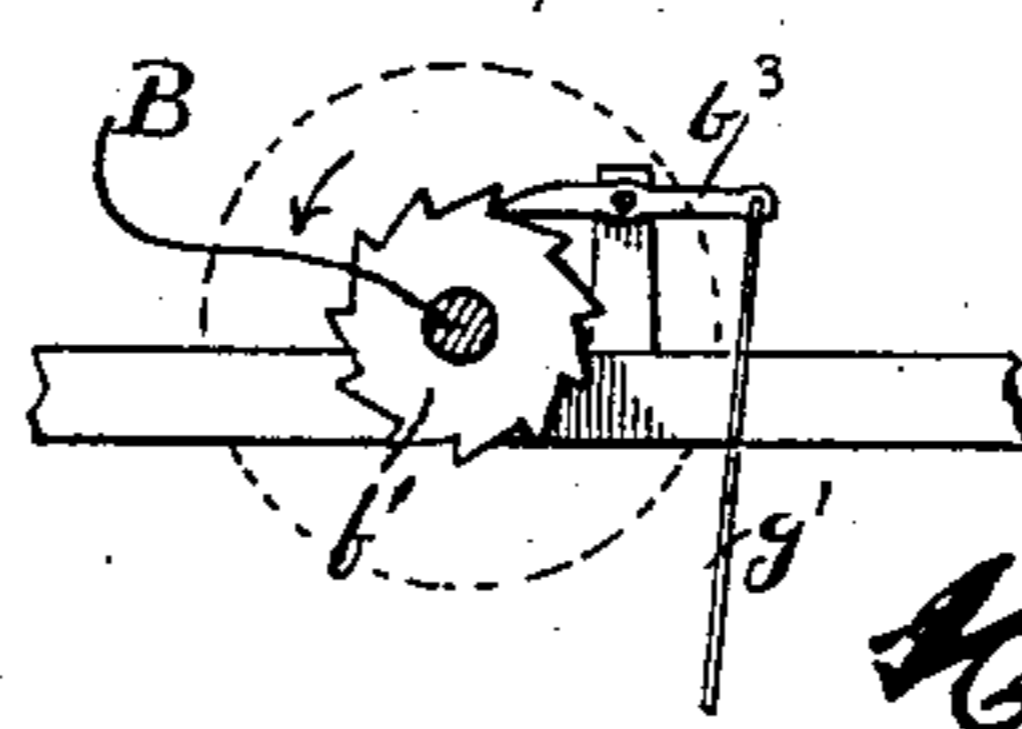


Fig. 5.



Witnesses.
E. Byron Gilchrist.
[Signature]

Inventor:
Henry G. Zoschnick
By *[Signature]*
Attorney

(No Model.)

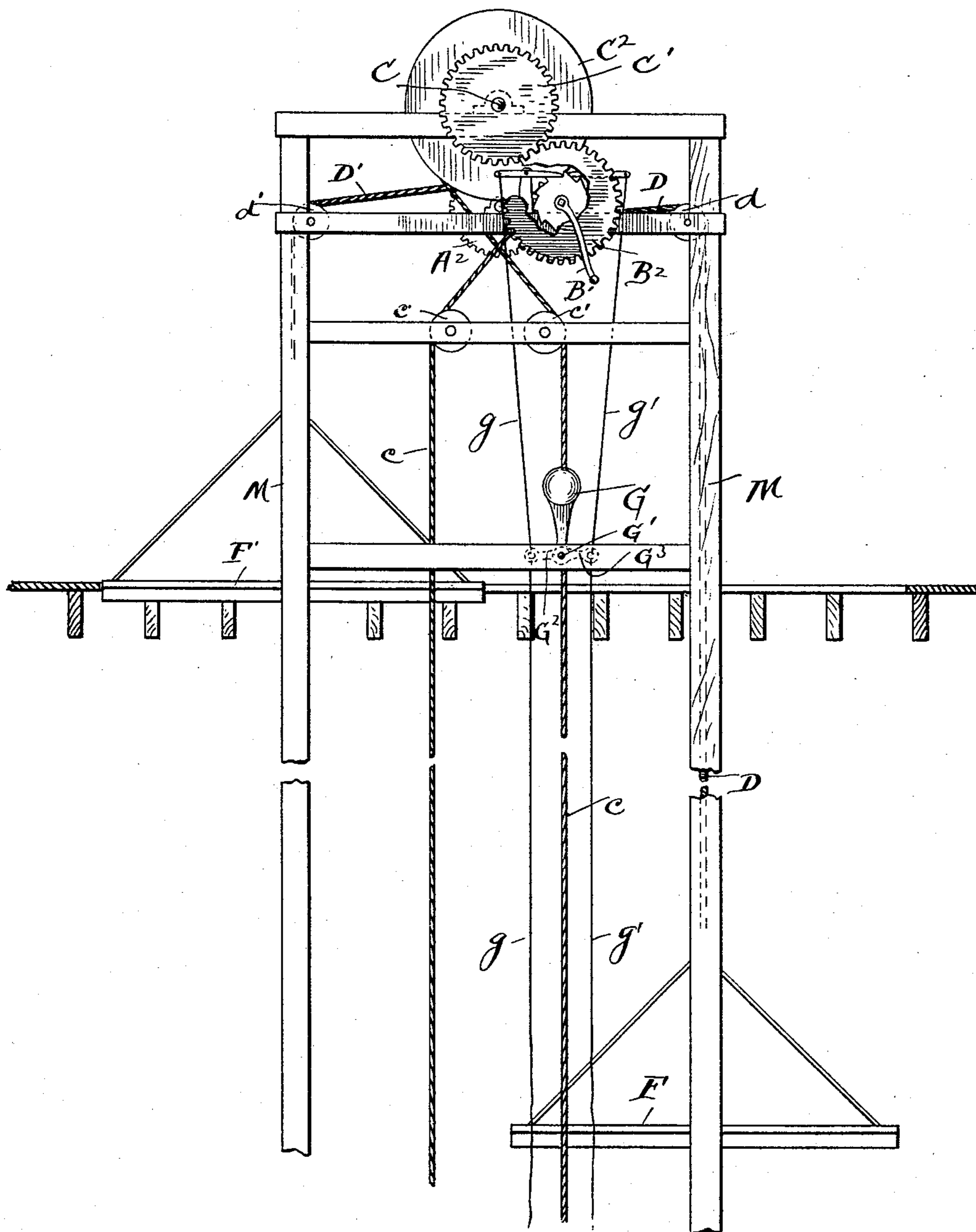
2 Sheets—Sheet 2.

H. G. ZOSCHNICK.
HAND ELEVATOR.

No. 482,054.

Patented Sept. 6, 1892.

Fig. 6.



Witnesses.
E. B. Gilchrist.
Charles

Inventor,
Henry S. Zoschick

By Leggett & Leggett
his Attorneys.

UNITED STATES PATENT OFFICE.

HENRY G. ZOSCHNICK, OF CLEVELAND, OHIO.

HAND-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 482,054, dated September 6, 1892.

Application filed February 5, 1891. Serial No. 380,270. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. ZOSCHNICK, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Hand-Elevators; 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 pertains to make and use the same.

My invention relates to improvements in hand-elevators designed more especially for building purposes; and it consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan. Fig. 2 is an end elevation. Fig. 3 is an enlarged side elevation of one of the elevator cages or platforms. Figs. 4 and 5 are elevations in detail, the former being much enlarged. Fig. 6 is an end elevation.

Portions are more or less broken away in the drawings to more clearly show certain features of the construction.

A suitable and preferably light framework is provided for attaching and supporting the boxes in which are respectively journaled the shafts A, B, and C. This framework may be varied indefinitely, according to the judgment of the builder or according to the material at hand. Scantlings, &c., and four posts M are provided, these posts serving as ways or for supporting the ways for the elevator cages or platforms F F'. Shaft A between its journal-bearings is preferably square in cross-section and has mounted loosely thereon the drum A', on which winds the hoisting-rope, this rope being wound once or twice around the drum to prevent it from slipping thereon, the two sections D D' of this rope leading from the drum in opposite directions and passing over idle-sheaves d d', and from thence leading down and connecting with the respective cages. The two cages are supposed to be alike and of ordinary construction—for instance, as shown in Fig. 3. As the rope winds on the drum it will of course travel endwise the drum, and the tension on the rope causes the drum to slide endwise of shaft A, so that the rope is always in line with the sheaves d d'. The only object of having shaft A square is to cause it and the drum to revolve in unison,

and this causes less wear on the drum than would be the case if the shaft were round and the drum both slid endwise and revolved on the shaft. However, this is a matter of no great consequence. The one end of the drum is provided with a spur-gear A², that engages a long pinion or series of pinions B³, mounted rigidly on the crank-shaft B. The drum in length is equal to about half the internal distance across the framework—that is to say, the distance between the journal-bearings of shaft A—and the length of pinion B³ is supposed to be equal to that of the drum. Hence as the drum travels lengthwise of the shaft to accommodate the alignment of rope with the sheaves gear A² always engages pinion B³. Shaft B is provided, usually, at either end with a crank B', and this shaft is also provided with a spur-gear B², that engages a gear C' of the short shaft C, and on this shaft is also rigidly mounted a large sheave or bull-wheel C², on which operates the hand-rope c, the two sections of this rope extending down, respectively, within easy reach of the cages, so that by operating this rope a person may hoist or let himself down the elevator-well. The hand-rope is crossed below sheave C², and the two sections of the rope engage idle-sheaves c' c', arranged for the purpose, by which engagement the hand-rope is wrapped so nearly around sheave C² that it will not easily slip thereon, and by crossing the rope in this manner a person ascending in a cage can pull down on the section of the rope that is opposite his cage—that is to say, the two sections of the hand-rope travel in opposite directions from that of the next adjacent cages. Shaft B has rigidly mounted thereon two ratchet-wheels b b', arranged in reverse order, with gravity-pawls b² b³ engaging the respective ratchet-wheels. Ratchet-wheel b is shown more clearly in Fig. 2 and ratchet-wheel b' in Fig. 5. When both the pawls engage the ratchet-wheels, the shaft is locked so that it cannot turn in either direction. Hence in moving the cars the one pawl must be disengaged from its ratchet-wheel, and this is done by tilting the pawl upward, and for this purpose the tail end of each pawl extends some little distance beyond the fulcrum thereof, these tail ends of the pawls having attached cords g g', respectively, these cords extending

downward to near the bottom of the elevator-shaft and being within reach, respectively, of the cages; but in the line of said cords (see Figs. 4 and 6) is preferably located a tilting gravity-lever G of considerable weight, said lever being fulcrumed, as at G' , preferably to a beam R , (see Fig. 6,) that is located at the side of the elevator-shaft and secured to the adjacent upright posts M in a plane a trifle above the uppermost floor S of the building or structure wherein the elevator is employed, lever G having lateral arms G^2 G^3 extending in opposite directions, as shown, and at their extremes having, respectively, attached the cords g g' aforesaid. When lever G is in the vertical position shown in solid lines, Fig. 4, it is self-sustaining, being directly over the center of gravity, and in this position both pawls are supposed to engage their opposing ratchet-wheels. When it is desired to rotate drum A' in one direction, the pawl that opposes such movement is tilted upward to disengage it from its ratchet-wheel, and this is done by drawing upward by hand the cord g or g' , that connects with the other pawl that is not to be tilted, whereby lever G is canted over, assuming an inclined position, as in dotted lines, Fig. 4. This causes the other cord that connects with the downwardly-moving arm G^2 or G^3 , as the case may be, to be drawn down, thereby tilting the connected pawl that opposed the rotation of the drum in the desired direction, and the gravity of lever G in such inclined position is sufficient to hold the elevated pawl inoperative. If it is desired to rotate the drum in the opposite direction, lever G is shifted so as to incline in the opposite direction, and when the elevator stops lever G is turned to its upright position, so that the elevator is locked as against moving in either direction. This device for operating the pawls will be found very convenient, as no care is required and the parts maintain their desired position without fastening the cord.

When the elevator is used, for instance, in erecting brick or stone buildings, usually the walls, say, of the basement and first story are erected before the elevator is wanted. The four posts M are placed in position inside or outside the building, as may be preferred, these posts being usually braced or stayed from the building. Next the framework for supporting the machinery is mounted on and temporarily secured to the posts, and from time to time the framework and attached machinery are elevated and the posts lengthened as the building progresses. While the heavy part of the work is progressing, usu-

ally a man or two are stationed at each crank to operate the elevator; but it frequently happens—for instance, in finishing off a building—that from time to time a workman wishes to ascend or descend and perhaps carry more or less material with him. In such case likely the men that operated the cranks have been discharged or given some other work, and the workmen by manipulating the hand-rope can travel up and down the elevator at pleasure; also, when a full force of men is employed at the cranks, other workmen can assist at the hand-ropes when the load is exceptionally heavy. Suppose the building is to be, say, six or eight stories high. A hoisting-rope of suitable length is employed; but in operating the elevator in constructing the lower stories only a portion of the rope would be wanted. Hence I provide a windlass or drum f , connected with each cage, on which drums the surplus rope is wound, and from time to time the rope is unwound from these drums as it is wanted in extending the elevator to accommodate the different stories as they are being constructed. These drums f are usually provided with ratchet-wheels and pawls to prevent the rope from unwinding. Hence no other fastening of the rope is required, except as the ends thereof are fastened to the respective drums f .

What I claim is—

1. In an elevator, the combination, with a car or cage and a revoluble drum capable of sliding endwise, of a hoisting-rope passed over the drum and extending in two directions from the latter and adapted to impart endwise motion to the drum in either direction to accommodate the position of the drum to itself, and elongated gear intermeshed with a gear on the drum for the purpose of accommodating the position of the drum, substantially as set forth.

2. In a hand-elevator of the variety indicated, the driving-shaft thereof having ratchet-wheels and engaging pawls arranged in reverse order, cords connected with the respective pawls and operatively connected with a gravity-lever in common, whereby the canting of such lever tilts and holds inoperative the one pawl or the other, according to the direction that the gravity-lever is tilted, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 14th day of January, 1891.

HENRY G. ZOSCHNICK.

Witnesses:

C. H. DORER,
WARD HOOVER.