No. 754,334. PATENTED MAR. 8, 1904.

W. L. McCABE.

PORTABLE CONVEYER.

APPLICATION FILED NOV. 7, 1901.

NO MODEL.

Fig. 1.

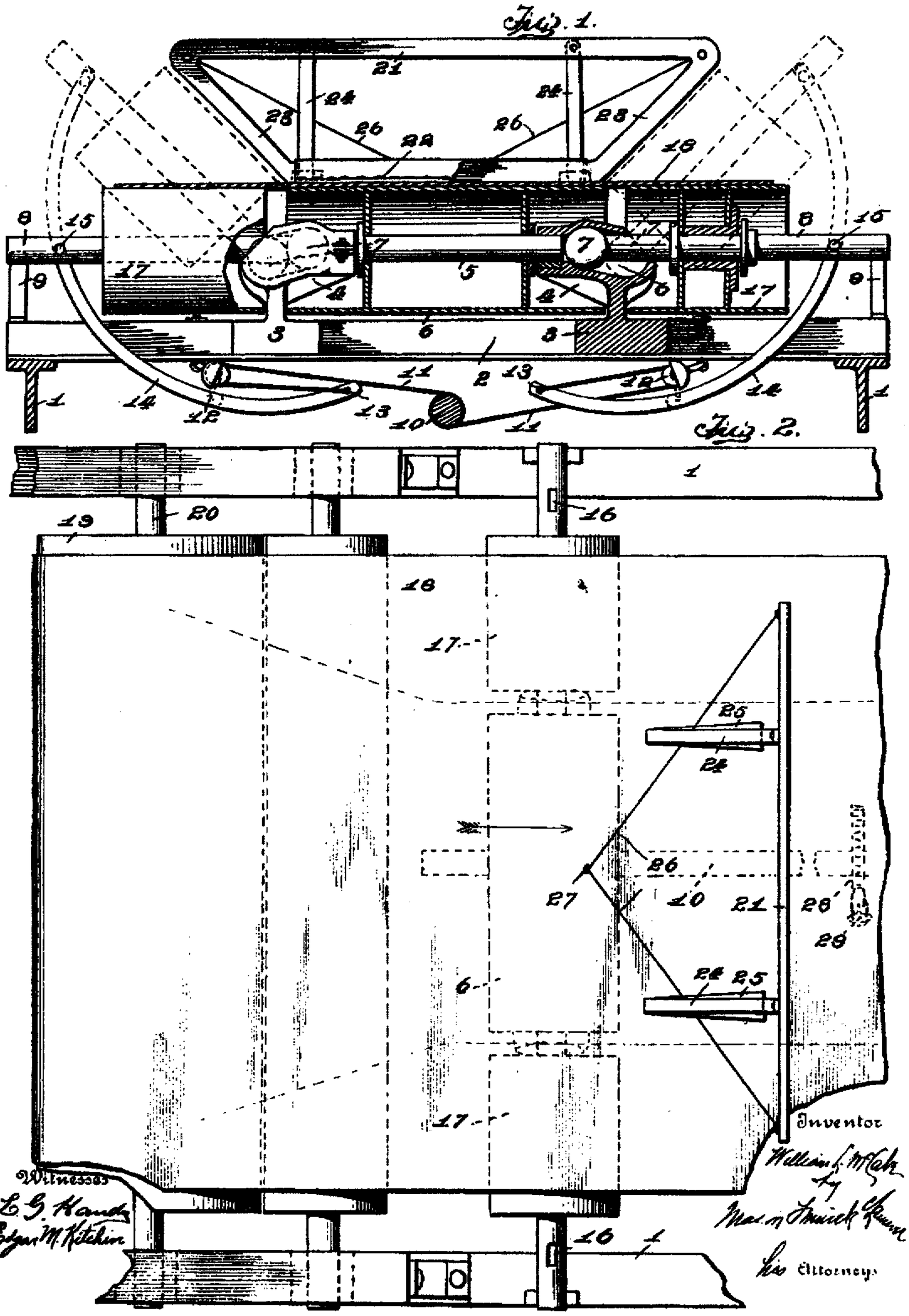

Fig. 2.

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THE HORGAN PETERS CO. PHOTO-LITHO. WASHINGTON, D. C.

No. 754,334. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

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PORTABLE CONVEYER.

SPECIFICATION forming part of Letters Patent No. 754,334, dated March 8, 1904.

Application filed November 7, 1901. Serial No. 81,413. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LEGGITT McCABE, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Portable Conveyers; 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.

This invention relates to improvements in portable conveyers, and more particularly to means for preventing lateral displacement of the articles conveyed.

It consists, in combination with a suitable framework, of a belt carried thereby, rollers carried by said framework and directly supporting said belt, and means for adjusting some of said rollers for cupping or slanting the edges of said belt for preventing lateral displacement of the articles conveyed.

It also consists, in combination with a suitable framework, of end rollers journaled in said framework, a belt passing about the same, and a plurality of intermediate rollers arranged in series, and means for adjusting the outer rollers of each of the series to a diagonal position for cupping or slanting the edges of said belt.

In the accompanying drawings, Figure 1 represents a vertical transverse section through a framework, a carrier-belt, and a series of supporting-rollers with their adjusting means embodying the features of my invention, parts being shown in elevation; and Fig. 2 represents a top plan view of end rollers and one series of adjustable rollers.

Referring to the drawings by numerals, 1 indicates any suitable conveyer-framework formed with transverse rails 2, rigidly carrying brackets, as 3 3, each having a hollow elongated head, as 4. The inner end of each of heads 4 forms a bearing for the ends of axle 5, carrying roller 6, which roller is preferably hollow and elongated, so as to inclose the greater part of each of the said heads 4.

Each of heads 4 is formed with a double socket, as 6, designed to form bearings for a ball, as 7, carried by an axle 8, the said ball in operation resting in the upper rear portion of the socket when axle 8 is in a horizontal position and finding bearings in the lower forward portion of said socket when the axle 8 is in a raised or diagonal position. Any suitable supports, as 9 9, may be arranged upon the framework when at the end of the axles 8 for temporarily supporting the same while in a horizontal position.

Revolubly supported in any suitable manner longitudinally of the framework 1 and substantially in the vertical plane of the middle of each of the beams 2 is arranged a shaft 10, carrying cables 11 11, which cables pass about suitable pulleys 12 12, carried by beam 2, and have their free ends secured, as at 13 13, to the lower ends of arc-shaped arms, as 14, which arms in turn have their upper ends pivoted, as at 15 15, within slots 16 16, formed near the outer end of axles 8, whereby in operation rotation of shaft 10 is designed to draw in upon cords 11, and consequently force outwardly the lower ends of arms 14, thereby raising the upper end thereof and tilting the axles 8 to their diagonal position. Slots 16, it will be observed, are of sufficient length to permit necessary pivotal play of the upper ends of arms 14 during their raising and lowering movement.

It will be noted that any suitable rollers, as 17, are designed to be mounted upon and revolve on axles 8 8, the said rollers being of the same diameter as roller 6, the three rollers thereby forming a series for supporting a suitable conveyer-belt, as 18, a plurality of these series being employed for supporting said belt throughout its length. In applying the belt 18 I find it desirable to keep the ends thereof flat, and I therefore preferably provide one or more rollers, as 19, over which the belt is designed to pass, said roller or rollers being provided with a rigid axle, as 20, extending entirely across the framework 1.

Any suitable bracket or supporting means,

as 21, may be secured to belt 18 by being laced thereto, as at 22, or in any other manner secured to the same between the points on said belt designed to pass over the roller 6, the remainder of the edges of the belt being left free, whereby the same may be cupped or slanted by the operation of axles 8 and rollers 17, as before described, the bracket 21 preferably being formed with upwardly-flaring bars or arms, as 23 23, designed to contact with the edges of belt 18 when they are set in a slanting position. The bracket 21 is also braced by means of rearwardly-extending supports, as 24 24, provided with any suitable form of feet 25, resting upon the belt 18, said braces being secured at their upper ends to the upper cross-bar or bracket 21. Any suitable spring or other elastic cables, as 26, are preferably secured to the outer ends of said upper cross-bar and extend rearwardly and are secured to any preferred form of eye, as 27, upon belt 18.

It will be noted that the braces 24 prevent a rearward movement of the bracket 21, and the cables 26 are designed to cause the said bracket to recover its normal position after having been forced forward from any cause. It will be noted that both the braces 24 and the cables 26 are contacted with belt 18 within the vertical planes of the axes of vertical movement of the axles 8.

Any suitable means, as a ratchet-wheel, as 28, and pawl 29, or other preferred and well-known means, is employed for retaining shaft 10 in any given position, whereby the rollers 17 are prevented from accidental displacement. Of course any preferred means may be employed for rotating shaft 10.

From the foregoing disclosure the operation of the present device will be apparent, the rotation of shaft 10 obviously raising or lowering pulleys 17, as may be desired, whereby articles of varying sizes may be conveyed upon belt 18, those not extending beyond the length of bracket 21 being prevented from having any lateral movement and larger articles being conveyed by permitting the edges of pulley 18 to lie in a flat horizontal plane. It will be noted that the elongated sockets 6 operate to permit pulleys 17 to be spaced from pulley 6 when in a horizontal position and to move nearer the same when raised to a diagonal plane, the said space accommodating such movement.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a mechanism of the class described, the combination with a suitable framework, of brackets mounted thereupon, a shaft rotatably supported by said brackets, a roller carried by said shaft, axles extending outwardly from each of said brackets and having ball-bearing mountings therein, rollers revolubly carried upon said axles, and means for moving the same from a horizontal to a diagonal plane, substantially as described.

2. In a mechanism of the class described, the combination with a suitable framework and brackets supported thereon, of heads formed thereon, a pulley rotatably mounted between said heads, elongated sockets being formed in said heads, a ball mounted in each of said sockets, an axle carrying said ball designed to be supported thereby in a horizontal position when at one end of said socket, and in a diagonal plane when at the other, a roller carried by each of said axles, and means for moving said axles from a horizontal to a diagonal plane, substantially as described.

3. In a mechanism of the class described, the combination with a suitable framework, and an endless belt supported thereon, of rollers revolubly mounted upon said framework and supporting said belt, a pivotally-supported shaft at each end of said supporting-rollers, rollers carried by said shafts designed to support the edges of said belt, and means for simultaneously swinging said shafts from a horizontal plane to a diagonal plane, whereby the belt may be cupped for preventing lateral displacement of the articles conveyed, substantially as described.

4. In a mechanism of the class described, the combination with a suitable framework, of an endless belt supported thereon, rollers revolubly mounted on said framework and supporting said belt, a pivotally-supported shaft at each end of each of said supporting-rollers, rollers carried by said shafts designed to support the edges of said belt, means for simultaneously swinging said shafts from a horizontal to a diagonal plane, whereby the belt may be cupped for preventing lateral displacement of the articles conveyed, and means for retaining said shafts in the same given plane relative to each other, substantially as described.

5. In a mechanism of the class described, the combination with a suitable framework of axles pivotally supported thereon and rollers carried by said axles, an arc-shaped arm pivotally secured to each of said axles, a cable secured to each of said arms and passed about suitable bearings, and a shaft extending longitudinally of said framework and having the ends of said cables secured thereto, whereby rotation of said shaft is designed to raise said axles and their rollers from a horizontal to a diagonal plane, substantially as described.

6. In a mechanism of the class described, the combination with a suitable framework of rollers carried thereby, a belt passed over said rollers, means for tilting some of said rollers from a horizontal to a diagonal plane for cupping or slanting the edges of said belt, and an

outwardly-flaring bracket carried by said belt, the flare thereof corresponding with the cup of the belt, means being provided on said bracket for preventing the rearward movement thereof, substantially as described.

7. In a mechanism of the class described, the combination with a suitable framework of axles pivotally mounted thereon, near each side thereof, rollers carried by said axles, arc-shaped arms having their upper ends pivotally secured within slots near the ends of said axles, a cable secured to the free end of each of said arms, pulleys carried by said framework, the said cables being passed about the same, a shaft extending longitudinally of the said framework, and having the said cables secured thereto, and means for retaining said shaft against rotation, whereby rotation of said shaft is designed to move said axles and their pulleys from a horizontal to a diagonal plane, substantially as described.

8. In a mechanism of the class described, the combination with a suitable framework, of axles pivotally supported thereon and rollers carried by said axles, an arm pivotally attached to each of said axles, a cable secured to each of said arms, and means extending longitudinally of said framework and carrying the inner ends of said cables for moving said arms whereby said axles and their rollers may be raised from a horizontal to a diagonal plane, substantially as described.

9. In a mechanism of the class described, the combination with a suitable framework, of axles pivotally supported thereon and rollers carried by said axles, an arm pivotally secured to each of said axles, and means for simultaneously moving said arms longitudinally for raising said axles and their rollers from a horizontal to a diagonal plane, substantially as described.

10. In a mechanism of the class described, the combination with a suitable conveyer-frame and a conveying-belt mounted thereon, of a series of belt-supporting pulleys arranged in said frame, a second series of belt-supporting pulleys arranged outside of the first-mentioned pulleys, and means for simultaneously adjusting the pulleys of the last-mentioned series to an angle relative to the first-mentioned pulleys, substantially as described.

11. In a mechanism of the class described, the combination with a suitable conveyer-frame, of belt-supporting pulleys arranged therein, a pivotally-supported pulley mounted at each end of said first-mentioned pulleys, and lying normally in the same horizontal plane, and means for adjusting each of said last-mentioned pulleys to an angle relative to its respective first-mentioned pulley, substantially as described.

12. In a portable conveyer, the combination with a suitable frame, of belt-supporting pulleys arranged centrally thereon, laterally-extending belt-supporting pulleys arranged outside said central pulleys, and means for simultaneously adjusting all of the laterally-extending pulleys of one side to an angle relative to the central pulleys, substantially as described.

13. In a portable conveyer, the combination with a suitable frame, of belt-supporting pulleys arranged at either side of said frame, and means for simultaneously adjusting all of said pulleys to diagonal planes, substantially as described.

14. In a portable conveyer, the combination with a suitable frame, of belt-supporting pulleys, pivotally attached thereto at either side thereof, and means for simultaneously adjusting all of the pulleys of one side to an angle relative to the frame, substantially as described.

15. In a portable conveyer, the combination with a suitable frame, of sockets carried thereby, pulley-carrying shafts slidably engaging said sockets, means pivotally supporting the free ends of said shafts, and means for adjusting said shafts to diagonal planes, substantially as described.

16. In a conveyer, a belt-guide adapted to give a conveyer-belt a trough-like form, consisting of two inclined supports for the outer parts of the belt, an intermediate support for the middle part of the belt, independent of said inclined supports, and means for tilting and adjusting the inclined supports relative to said intermediate supports, substantially as described.

17. In a conveyer, a belt-support consisting of the combination of two inclined pulleys, an intermediate support for the middle part of the belt independent of said pulleys, and means for tilting the axes of the inclined pulleys relative to the horizon and to said intermediate support, substantially as described.

18. In a conveyer, a belt-support consisting of the combination of two inclined pulleys, an intermediate pulley, and means for tilting the axes of the inclined pulleys relative to a horizontal plane, substantially as described.

19. In a conveyer, a belt-support consisting of the combination of two incline pulleys, an intermediate pulley, means for tilting, and means for supporting the axes of the incline pulleys relative to a horizontal plane.

20. In a portable conveyer, the combination of a tilting belt-support and flexible means for actuating the same.

21. In a portable conveyer, the combination with a belt, of tilting supports therefor arranged transversely thereof and adapted to swing in the same vertical plane, and flexible means for moving said supports.

22. In a portable conveyer, the combination with a belt, of tilting supports for the same

adapted to swing in the same vertical plane transversely of the belt, and means for simultaneously adjusting said supports.

23. A support for a belt comprising a pulley, a tilting shaft carrying the same, and means for tilting said shaft and moving the same bodily longitudinally.

24. A device of the class described comprising a pivotally-mounted tilting support, means for tilting said support and moving the pivoted end thereof into different horizontal planes.

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

WILLIAM LEGGITT McCABE.

Witnesses:

C. A. BARNES,

FRANK OLIVER.