

J. L. LEMOINE.
SMOOTH BELT ELEVATOR.
APPLICATION FILED MAR. 24, 1921.

1,405,233.

Patented Jan. 31, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

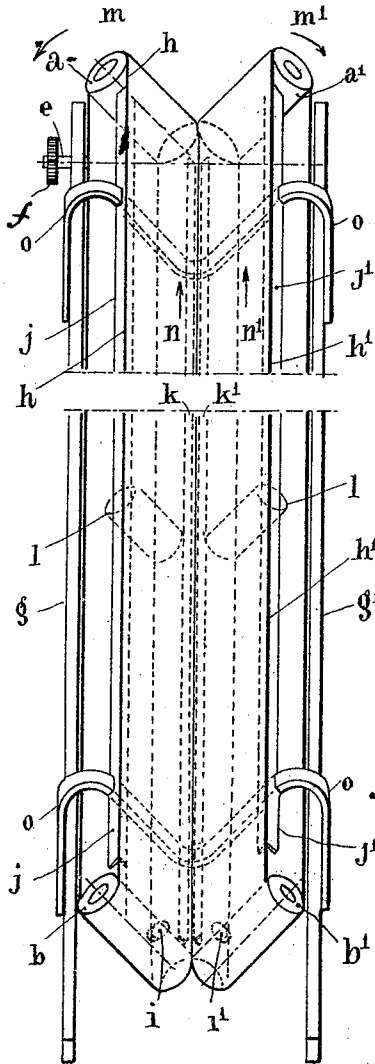


Fig. 3.

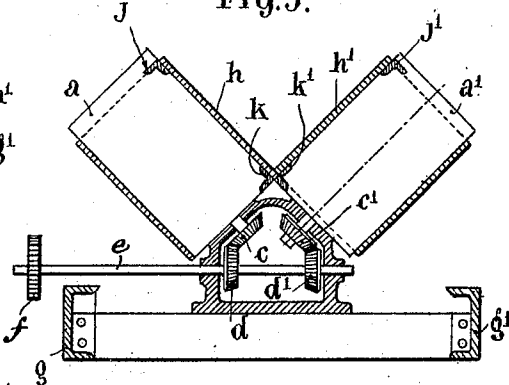
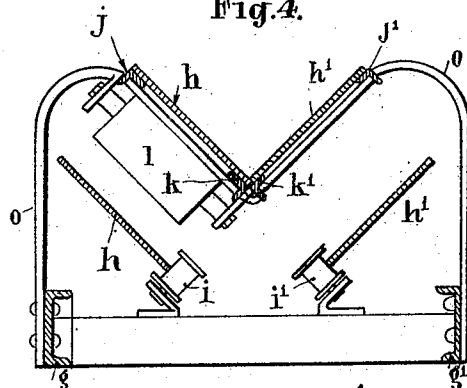


Fig. 4.



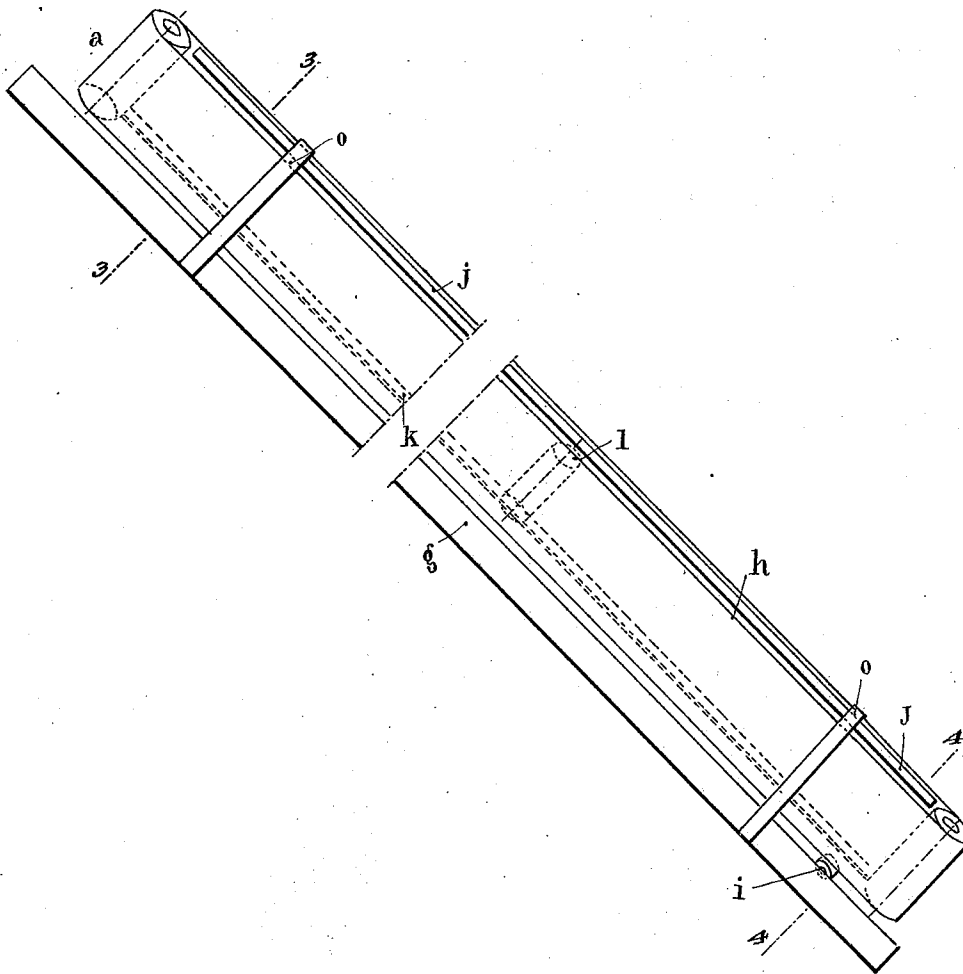
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

JULES LOUIS LEMOINE, OF PARIS, FRANCE.

SMOOTH-BELT ELEVATOR.

1,405,233.

Specification of Letters Patent. Patented Jan. 31, 1922.

Application filed March 24, 1921. Serial No. 455,369.

To all whom it may concern:

Be it known that I, JULES LOUIS LEMOINE, citizen of the Republic of France, residing at Paris, France, have invented certain new and useful Improvements in Smooth-Belt Elevators, (for which I have filed application in France Mar. 15, 1919, and in England April 17, 1919, and in Germany June 8, 1920,) of which the following is a specification, reference being had therein to the accompanying drawing.

Angular conveyors comprising two smooth belts so arranged that the edge of one of these belts bears against the face of the other so as to form a sort of chute are well known.

The main difficulty occurring in the industrial use of these conveyors resides in this that the edge of one of the belts always tends to glide on the face of the supporting belt and to slide off therefrom under the weight of the material conveyed.

Therefore, it is necessary to provide a perfect guide for the belts so as to avoid their gliding on the lateral surface of the sliding drums and to prevent the belts from opening under the action of the goods conveyed thereby letting a portion thereof escape.

The guiding means forming the object of my present invention comprises a group of two angle irons, the edges of which join and two branches of which serve as support for the lower borders of the ascending sides, one of these sides bearing with its lower border on the upper face of the other side. This group of two angle irons is combined with two other angle irons supporting the upper borders of the two ascending sides and further with rollers laterally guiding the descending sides of the belts before they engage the guide pulleys.

Various embodiments according to my invention are shown by way of example, in the accompanying drawings, in which Fig. 1 is a front view of an angular conveyor of two smooth belts provided with a guiding arrangement in accordance with my invention. Fig. 2 is a side view of Fig. 1. Figs. 3 and 4 are sectional views of the conveyor along lines 3—3 and 4—4 respectively.

The apparatus comprises two pulleys a a^1 , of equal diameter, of which the spindles in the same plane, are mounted on the same frame; these spindles make mutually a

given angle (90° for example). The lower edges of these pulleys are tangential.

Two other pulleys b b^1 are mounted in the same manner, but whilst these two latter are loose on their spindles, the pulleys a and a^1 are rotated in opposite directions by means of a train of gearing c c^1 d d^1 (Fig. 3); the bevel wheels d and d^1 are keyed on the same shaft e and are themselves rotated by means of a wheel f driven by a suitable motor.

The frames of the pulley systems a a^1 , b b^1 , are fixed on girders g g^1 . The axes of the pulley systems are perpendicular in plane to the girders.

Smooth endless belts h and h^1 enwrap respectively the pulleys a b and the pulleys a^1 b^1 . The belt h is so situated that its lower border is tangential to the pulleys a^1 and b^1 ; a small roller i directs it on to the pulley b . The lower border of the belt h^1 rests against the belt h ; a roller i^1 directs it suitably on to the pulley b^1 . This arrangement is so effected that in the internal angular portion of the elevator the belts together form a perfect joint. Moreover, throughout all their operative path, these belts are guided by angle irons j j^1 k k^1 on which they slide.

When the elevator has a considerable length, rollers such as l included between the angle irons j k and j^1 k^1 can support the belts.

A frame o of bar iron mounted on the girders g g^1 supports at intervals the longitudinal angle iron system j j^1 k k^1 and supporting rollers such as l .

Fig. 4 shows this detail of construction as well as the two rollers i i^1 which guide the belts at their introduction on to the lower pulleys b b^1 . The supports for these guide rollers are secured on one of the cross-ties which space apart the two girders g g^1 .

The pulleys a and a^1 of equal diameter being rotated in the direction indicated by the arrows m m^1 , it follows that the two belts will move at the same speed in the direction of the arrows n and n^1 , making contact along the entire length of their angularly meeting borders.

Moreover, the angle irons k , k^1 prevent the belts h , h^1 from gliding one relative to the other and support these belts continuously along the entire length of their ascending sides. The belts therefore cannot open under the action of the goods conveyed thereby let-

ting a portion thereof escape. As the angle
irons *k, k'* stop short before the pulleys *a, a'*
and *b, b'* all excessive friction of the edges of
the belts against the ends of the angle irons
5 is avoided. Finally, the guiding and the
supporting of the belts is completed by the
angle irons *j, j'* and the rollers *i, i'*, which
support the belts laterally thereby insuring
their proper engagement with the pulleys
10 *l, l'*.

I claim:

In a conveyor comprising two smooth
belts forming an angle between them, and
guiding pulleys therefor, the combination
15 with the said belts, of two angle-irons join-

ing at their edges, the branches of the said
angle-irons serving as a support for the
lower borders of the ascending sides, two
other angle-irons for guiding and support-
ing the upper borders of the ascending sides, 20
and rollers laterally guiding the descending
sides of the belts before their engagement
with the said guiding pulleys.

In testimony whereof I have hereunto af-
fixed my signature in the presence of two 25
witnesses.

JULES LOUIS LEMOINE.

Witnesses:

LOUIS GARDET;
HENRI MONIN.