Nov. 27, 1928. 1,692,970

G. D. WARNICK

DISTRIBUTING SYSTEM FOR BRICK YARDS AND THE LIKE

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FIG. I.

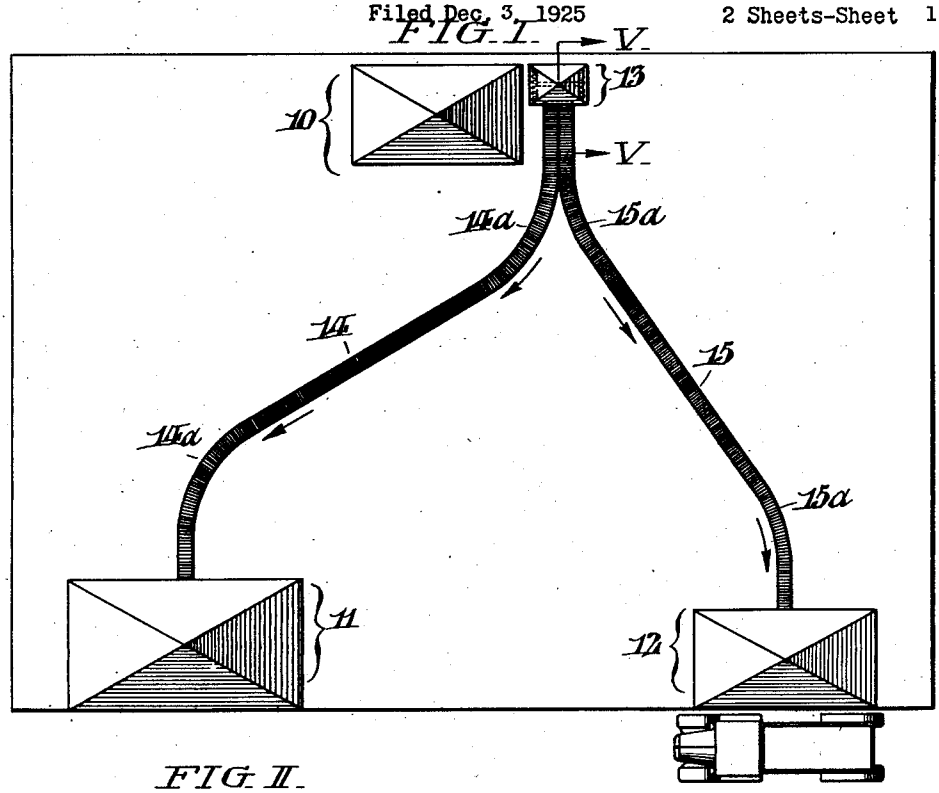


FIG. II.

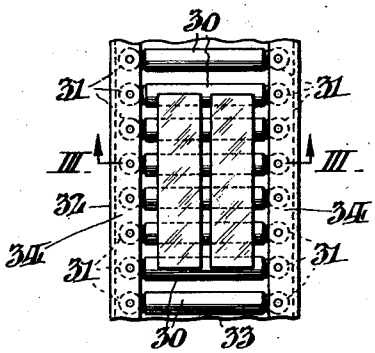


FIG. III

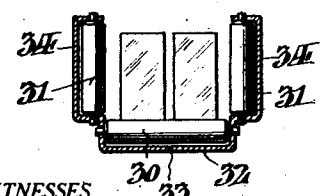
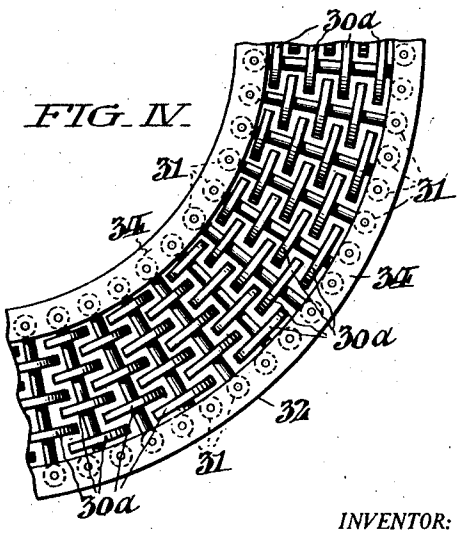


FIG. IV.



WITNESSES

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FIG. V.

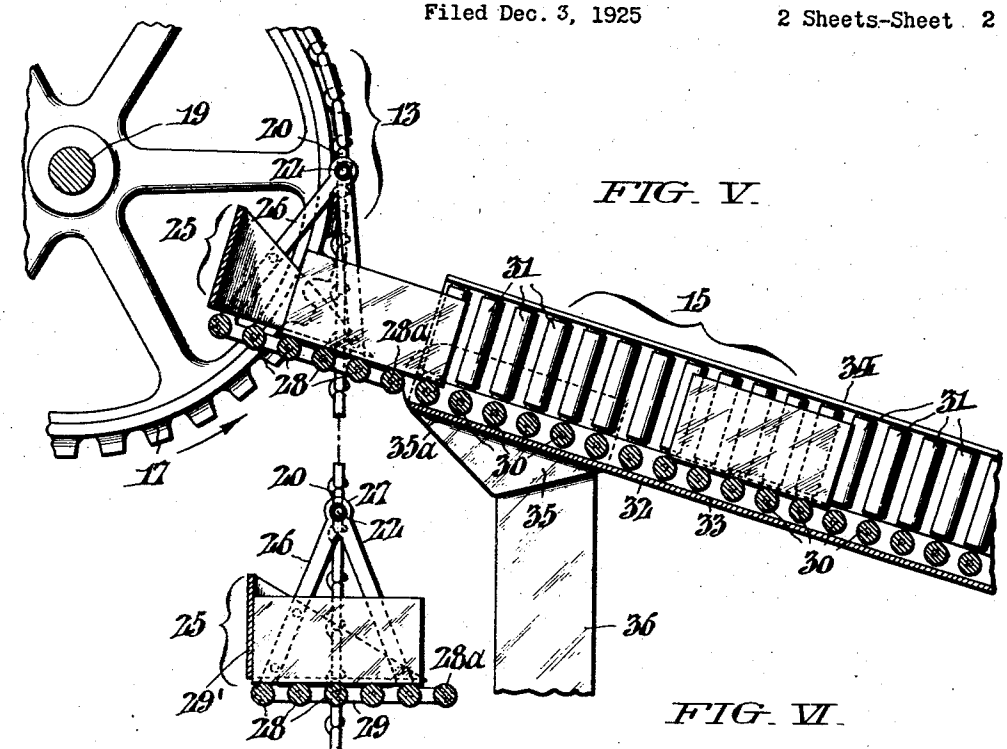
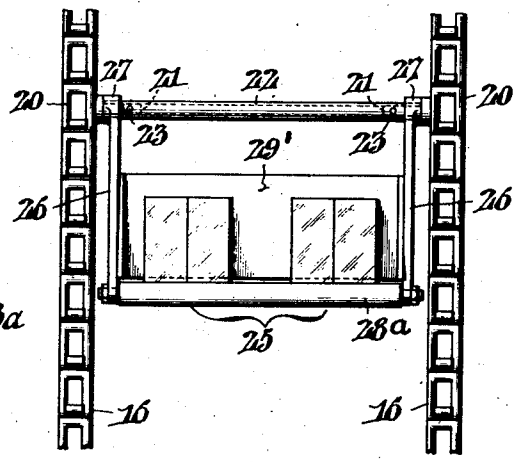


FIG. VI.



WITNESSES

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UNITED STATES PATENT OFFICE.

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DISTRIBUTING SYSTEM FOR BRICKYARDS AND THE LIKE.

Application filed December 3, 1925 Serial No. 72,952.

This invention relates to conveying systems variously useful in industrial plants to distribute manufactures from a central point for delivery at relatively remote stations, for example, in brick yards, to convey the finished bricks (or other building blocks) from a drying kiln to relatively distant storage sheds, loading platforms, etc., or again, in distributing bricks or the like to regions of operation in buildings undergoing construction.

My invention is directed toward improvements in distributing systems more particularly useful in the specific instances mentioned, designed to insure rapid delivery of the manufactures to the desired locations without danger of injury to them incident to transit; and to render such distribution over the system entirely automatic except for initial handling necessary in charging it.

In the drawings Fig. I is a plan view, more or less diagrammatically represented, of a manufacturing plant equipped with improved distributing system.

Fig. II is a fragmentary view in plan, showing the details of the straightaway portions of the gravity chutes embodied in the system.

Fig. III is a transverse section of the chutes taken as indicated by the arrows III—III in Fig. II.

Fig. IV is a fragmentary view showing the special construction of the curved portions of the chutes in accordance with my invention.

Fig. V is a vertical sectional view, taken as indicated by the arrows V—V in Fig. I, of the elevator by which the building units are lifted to the level of the receiving ends of the chutes; and,

Fig. VI is a detail view showing the manner in which the carriers for the building units are mounted between the sprocket chains of the elevator.

The diagrammatic representation of Fig. I is that of a brick manufacturing plant comprising a drying kiln conventionally shown at 10, a storage shed at 11, and a loading shed or platform at 12, these being stationed at relatively remote points in the plant. Adjacent the drying kiln 10, in accordance with my invention, I locate an elevator comprehensively designated 13, by which the building units are elevated to the receiving ends of inclined gravity chutes 14, 15 which—respectively—extend to the storage shed 11 and the loading platform 12.

As shown in Figs. V, VI, the elevator 13 comprises a pair of endless chains 16, 16 which run over upper and lower sprocket wheels 17, 18 fixed upon shafts 19, 20 and capable of being driven by any suitable power means, not shown. At appropriate intervals, the chains 16, 16 have interposed in them, special links 20 with inwardly projecting lugs 21 adapted to take into the ends of tubular tie rods 22 which are secured, during assembling, by transverse pins or rivets 23 passing through the aforesaid lugs, as shown in Fig. VI. Suspended from the tie rods 22 are scoop-like carriers 25 each embodying side frames 26 with bosses 27 at their upper ends pivotally engaging the tie rods 22, and closely spaced rollers 28 with their trunnions journalled in the horizontal bars 29 of said frames. The scoop-like carriers 25 are closed at the sides and the back by an angularly bent plate 29′, preferably of sheet metal, riveted or otherwise secured to the side frames 26. Incidental to the operation of the elevating conveyor 13, the scoop-like carriers 25 are successively elevated to the level of the receiving ends of the chutes 14, 15, which, as shown in Fig. I, are arranged in juxtaposition so as to be comprehended or jointly served at one time by said carriers.

The chutes 14, 15 are identical in construction, the straightaway portions of each embodying a succession of horizontal supporting rollers 30, and flanking vertical side rollers 31, 31, all housed within a channelled support 32 with an underlying horizontal web 33 and upstanding lateral flanges 34 that provide journals for the respective rollers.

The construction at the curved portions 14^a, 15^a of the chutes 14, 15 (shown in Fig. IV) differs from the straightaway portions in that the horizontal rollers are radially arranged and composed of sections 30^a adapted to interlap, thereby obviating excessive intervening gaps and providing a more continuous support for the bricks, the sections being graduated as to diameter to define a slight inward tilt of the chute bottoms at the designated regions.

Automatic discharge of the bricks from the carriers 25 of the elevating conveyor 13 is effected by a cam plate 35 affixed in any convenient manner to the sub-structure 36 (Fig. V) which supports the chutes 14, 15, the in-

cline 35ª of the cam plate 35 being successively engaged by the end roller 28ª of each group 28 on the carriers 25 to angularly tilt the same as shown in Fig. V, incidental to alignment with said chutes.

The operation of the system is as follows: Loading of the elevator 13 is accomplished manually at the ground level of the kiln 10 (Fig. I),—the operative taking a pair of bricks in each hand (as is customary in handling manufactures of this kind), and placing two such groups in spaced relation upon each of the scoop-like carriers 25 as shown in Fig. VI. In course of elevation, the bent plates 29 serve as guards to prevent displacement of the bricks; and as each of the scoop-like carriers 25 approaches the juxtapositioned receiving ends of the chutes 14, 15, its outermost roller 28ª engages the sloping edge 35ª of the cam 35 with the result that the carrier is gradually swung about its pivot rod 22 until it assumes the tilted position shown at the top of Fig. V with the series of supporting rollers 28 inclined in correspondence with the pitch angle of the aforesaid chutes. Upon alignment of the carrier rollers 28 with the rollers 30 of the chutes 14, 15, the two brick groups are automatically released to roll, under influence of gravity, from the scoop-like carrier 25 to enter said chutes for guidance—respectively—to the storage shed and loading platform 11, 12. It is of course obvious, that if desired or necessary in meeting the exigencies of special applications of my invention, the number of delivery chutes 14, 15 may be increased indefinitely. In transit through the straightaway portions of the chutes, the bricks are accorded absolute freedom of movement under support and guidance of the horizontal and vertical rollers 30, 31. The same holds true at the curves 14ª, 15ª by virtue of the interlapping relation between corresponding sections 30ª of the horizontal rollers, and it will be apparent that the gradation of the sections as to diameter results in a sufficient inward tilt of the chute bottoms at the designated regions to counteract the thrust due to directional change in the travel of the bricks.

Having thus described my invention, I claim:

1. In distributing systems of the character described, the combination of an elevating conveyor with pivoted scoop-like carriers each equipped with a series of rollers to support articles thereon, and stationary cam means engageable by the forward roller of each successive carrier to deflect the latter into alignment with a distributing chute for automatic discharge of the carrier content.

2. In distributing systems of the character described, the combination of an elevating conveyor with pivoted scoop-like carriers each of a dimension to comprehend the combined width of a plurality of chute inlets and having a series of rollers to support articles thereon, and stationary cam devices cooperative with the forward roller of each successive carrier to deflect the latter into alignment with the chute inlets for distributory discharge of the carrier content.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 27th day of November, 1925.

GEORGE D. WARNICK.