Aug. 9, 1932. J. J. HARTLEY 1,871,054

MOLD CONVEYER

Filed April 29, 1929 3 Sheets-Sheet 1

Fig. 1.

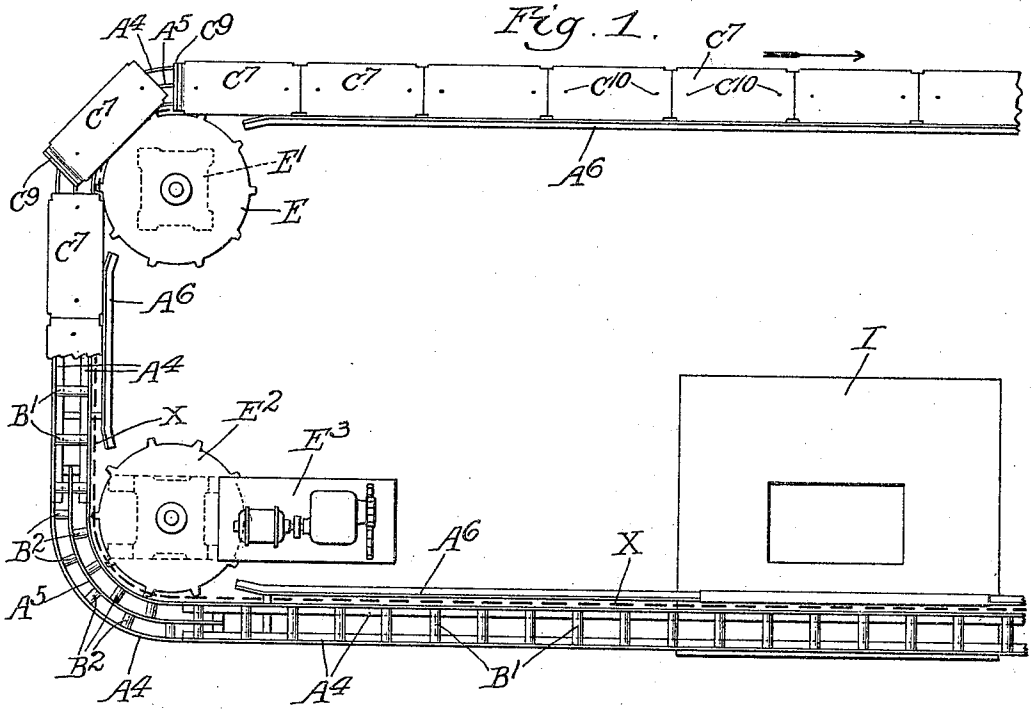
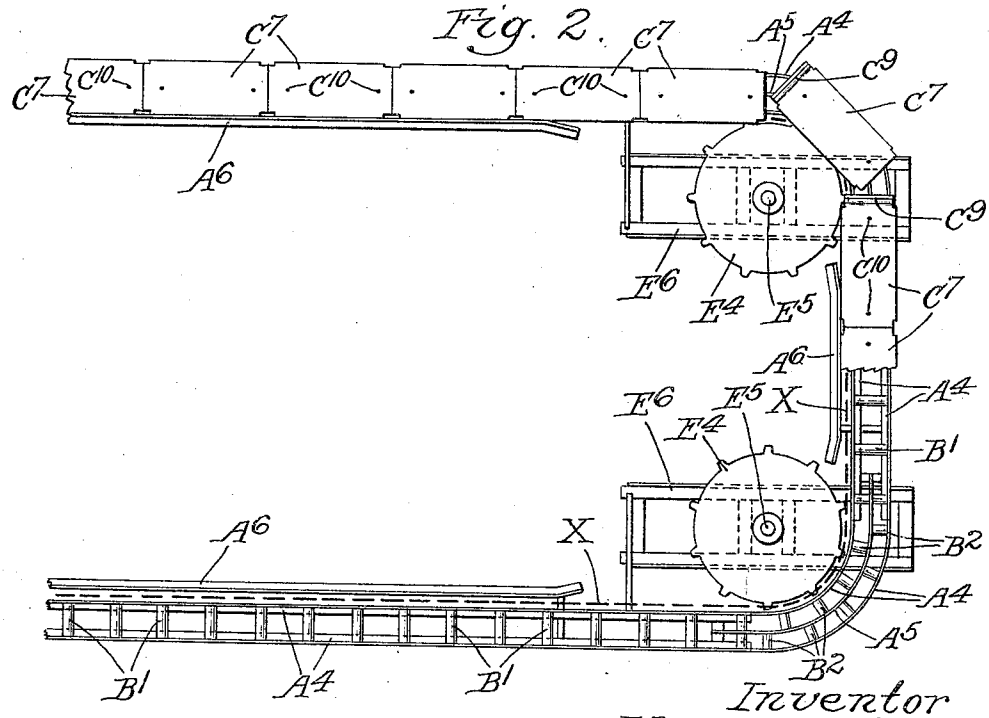


Fig. 2.



Inventor
John J. Hartley
by Parker & Carter.
Attorneys

Aug. 9, 1932. J. J. HARTLEY 1,871,054

MOLD CONVEYER

Filed April 29, 1929 3 Sheets-Sheet 2

Fig. 4.

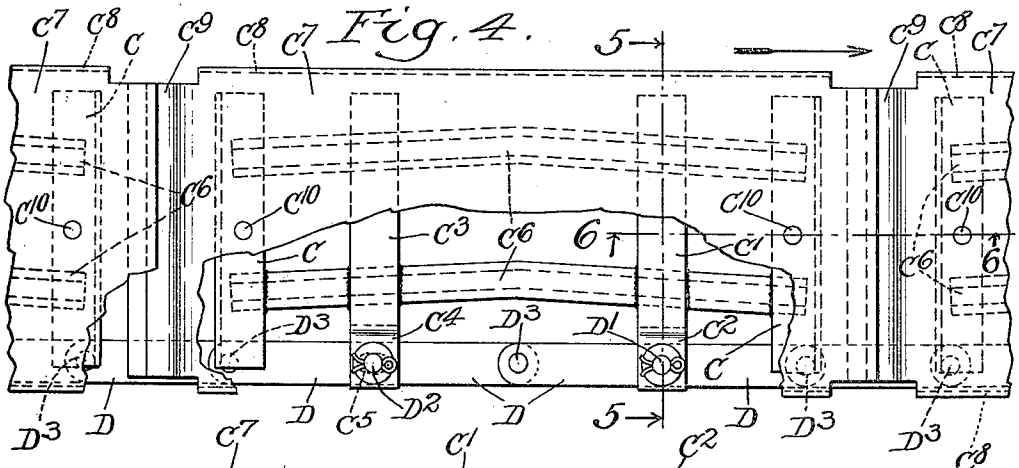


Fig. 5.

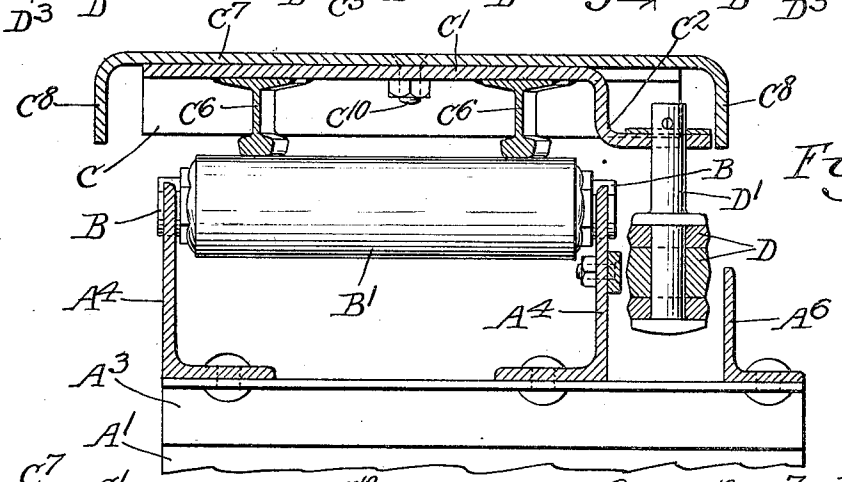


Fig. 6.

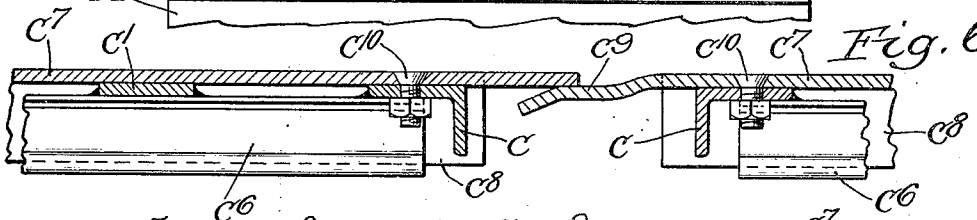
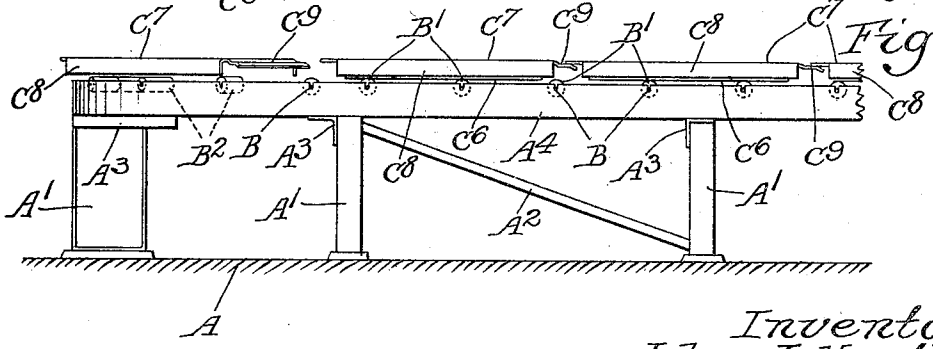


Fig. 3.



Inventor
John J. Hartley
by Parker & Carter.
Attorneys.

Aug. 9, 1932. J. J. HARTLEY 1,871,054

MOLD CONVEYER

Filed April 29, 1929 3 Sheets-Sheet 3

Fig. 7.

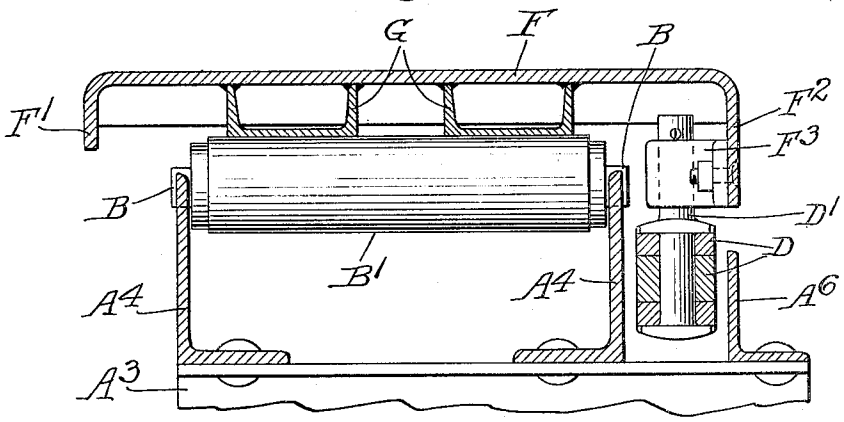


Fig. 8.

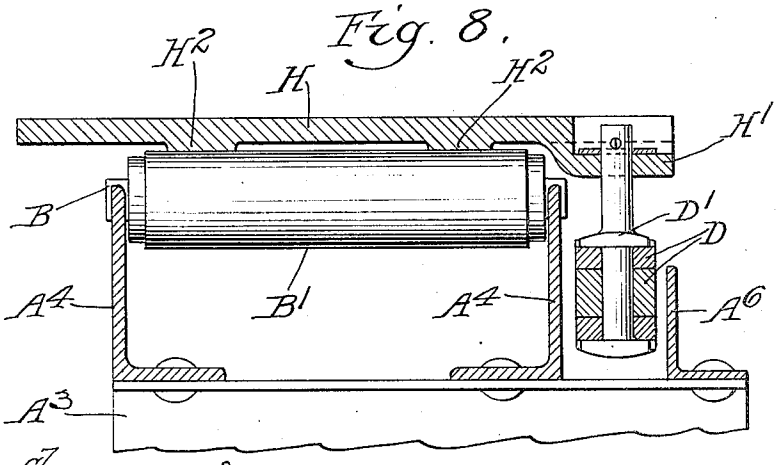
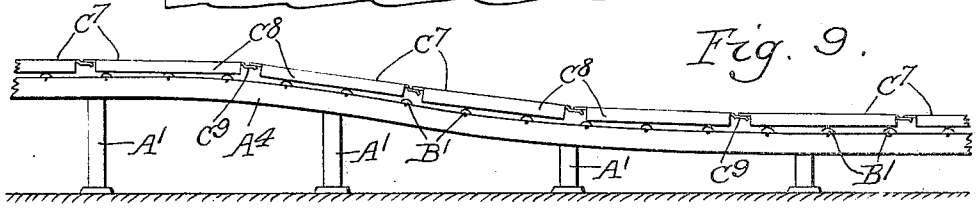


Fig. 9.



Inventor
John J. Hartley
by Parker & Carter.
Attorneys.

Patented Aug. 9, 1932 1,871,054

UNITED STATES PATENT OFFICE

JOHN J. HARTLEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO LINK-BELT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

MOLD CONVEYER

Application filed April 29, 1929. Serial No. 358,837.

This invention relates to a conveyer and particularly to the mechanism adapted for conveying molds, although it is not limited to this use. One object of the invention is to provide a conveyer of this type which may be used for the conveying of molds in a casting plant and when so used it is adjustable so that its size and shape may be adjusted and so that adjustment may be made to take up for wear and to accommodate for other conditions. Another object is to provide a device of this sort in which the difficulty of accumulations of dust, sand and other dirt upon the supporting parts is reduced to a minimum. Other objects will appear from time to time in the course of the specification and claims.

The invention is illustrated more or less diagrammatically in the accompanying drawings wherein:

Figure 1 is a partial plan view with parts removed;

Figure 2 is a partial plan view with parts removed; Figures 1 and 2 taken together show a complete plan view of a typical installation.

Figure 3 is a side elevation of the left hand end,—that is to say, looking from the left toward the device indicated in Figure 1;

Figure 4 is a partial plan view taken on an enlarged scale and showing parts broken away;

Figure 5 is a transverse vertical cross section on a further enlarged scale taken on line 5—5 of Figure 4;

Figure 6 is a vertical longitudinal cross section on an enlarged scale taken on line 6—6 of Figure 4;

Figure 7 is a view generally similar to Figure 5 indicating a modified form;

Figure 8 is a generally similar view indicating a further modification.

Figure 9 is a diagrammatic elevation of a slight modification.

Like parts are indicated by like symbols throughout the specification and drawings.

A is a foundation which may be a specially prepared foundation or floor of a factory or shop where the machine is installed. A^1 are supporting members resting upon the foundation and extending preferably upwardly. Bracing members A^2 may be used. The particular design of the support is unimportant. Any sort of supporting structure which may carry the installation may be used. Extending laterally across the upright supporting members A^1 are preferably a plurality of lateral members A^3. Supported on these members are two or more roller carrying rails A^4. At the turns an additional or intermediate roller carrying member A^5 is used. The purpose of this is obviously to provide for an additional set of rollers at the turns. A^6 is a chain guard rail supported by the members A^3 and adapted to inclose and to prevent interference with the driving chain.

The members A^4 and A^5 are notched at appropriate intervals and in these notches are positioned the supporting shafts B of rollers B^1. At the turns instead of the rollers B^1, short rollers B^2 are used. Their construction is normally the same as the rollers B^1 and their bearing and supporting means are normally the same.

The carrying members of the conveyer will now be described. These comprise a chassis assembly, a chain attachment and a carrying cover plate. The chassis assembly includes two end cross members C, C. An intermediate cross member C^1 which is provided with a downwardly bent portion C^2 is perforated to receive a chain connection. There is also a cross member C^3 which has a downwardly bent portion C^4 within which there is a slot C^5. Fastened by welding or other suitable means to the four cross members above described are two or more rails C^6, C^6. These rails are preferably curved, as shown in detail in Figure 4 and they, with the cross members, form a chassis structure. Lying upon this chassis structure and preferably bolted to it is a carrying or cover plate C^7 which may have downwardly depending edges C^8 and is provided at one end with a reduced and slightly depressed portion C^9. Bolts C^{10}, C^{10} serve to fasten the cover plate removably on the chassis.

D, D are chain links. They are fastened at one point by means of a pin D^1 to each of the cross members C^1 at its downwardly bent

portion C^2. They are also positioned by means of a pin D^2 in each of the slots C^5 of the depressed portion C^4 of the cross members C^3.

Intermediate the point of attachment on the cross members C^1 and C^3 they are joined by pins D^3.

The parts above described are arranged to form a continuous conveyer with endless chains and this arrangement is shown in Figures 1 and 2. While in these figures there is shown a generally rectangular arrangement, it will be understood that this might be altered and the conveyer might be given any suitable outline by the addition or reduction of the number of sprockets. In the arrangement shown four sprockets are used, one being a driving sprocket and the other three idling. The large sprocket E is carried on a fixed mounting E^1. The sprocket E^2 is provided with a driving mechanism indicated generally at E^3. This may be of any suitable type. It is sufficient that they furnish power under proper control for driving the chain. The chain as a whole is indicated by X in Figures 1 and 2. It meshes with the sprockets. At the end of the conveyer opposite to the sprockets E and E^2 are two adjustably mounted sprockets E^4, E^4. Each of them is carried on a shaft E^5, E^5 which is itself mounted in an adjustably supporting base E^6, E^6. This base is such that the bearing of the sprocket may be moved backward and forward, that is to say, in or out, so as to increase or decrease the tension and to provide any adjustment which is necessary.

As shown in Figure 7, a modified form of the structure appears. In this form the supporting arrangement, the roller mounting and the chain construction are generally similar to that described above. A different plate and chassis structure is used, however. In this form of the invention a plate F is provided with a downwardly depending edge F^1 on one side and a somewhat longer edge F^2 on the other. This edge F^2 is provided with attaching points or bearings F^3 in which the pins D^1 may be positioned.

Instead of the rails C^6 as shown in the earlier figures, rails G, G are used, and these rails are fastend preferably by welding directly to the bottom of the plate F. Any suitable type of rail may be used and for this construction a built up intermediate surface structure is unnecessary and the plate itself serves the function of the cross members shown in the earlier figures.

In Figure 8 a further modification is shown. In the form here shown a plate H is used. It is provided with depressions or downwardly extending parts H^1 in which the pins D^1 are received. The plate is thickened as at H^2, H^2 to provide portions or bearing parts which bear against the rollers which are the same as shown in the preceding forms.

It will be obvious that while I have shown and described an operative device, many changes may be made in the size, shape, relation, distribution and proportion of parts without departing materially from the spirit of this invention, and it is desired, therefore, that this description and showing be considered as in a large measure diagrammatic.

The use and operation of this invention are as follows:

The parts are assembled as shown and it will be noticed that one end of each plate over-laps the end of an adjacent plate. Thus there is a complete surface, and except at the time when the parts are turning about a sprocket there is no blank surface in the conveyer. The sprockets E^4, E^4 are given proper adjustment to provide for proper tension and the conveyer is put in motion. The molds are put on at any suitable point and may be dumped at any suitable point. A shake out hopper assembly I may be provided and at this point the molds may be removed for shaking to separate the sand from them and they may be carried by conveyers or by any other suitable means. It will be understood that this conveyer is not limited in its use to the conveying of molds, but is particularly applicable to that use.

The conveyer chain used is such that it cannot only bend laterally, but can bend to some degree vertically and thus the general arrangement shown can be used in connection with a conveyer which has a somewhat limited upward or downward path. Such an arrangement is indicated diagrammatically in Figure 9.

The bent or irregular shape of the rails C^6 causes the wear of the rails on the rollers which support them and which they contact, to be distributed more widely across the surface of the rollers than would be the case if the rails were straight. A sufficient degree of bending or curvature may be given to the rails so that there wear is distributed across approximately the entire face of the rollers.

I claim:

1. In combination in a conveying assembly, a plurality of conveyer platform members, a chain adapted to drive them, means for driving the chain, attaching means whereby the chain is attached to each of said platform members at a plurality of points, the connection at some of said points being upon a fixed pivotal connection and the connection at other of said points providing a limited movable pivotal connection.

2. In combination in a conveying assembly, a plurality of rollers, a chain, means for driving said chain, a plurality of platform members, each having a plurality of track members adapted to contact and rest upon

said rollers, said track members being permanently so bent as to avoid uneven wear upon the rollers, and means for joining said platform members to said chain.

3. In combination in a conveying assembly, a plurality of rollers, a chain, means for driving said chain, a plurality of platform members, each having on its under surface a plurality of track members adapted to contact and rest upon said rollers, said track members being permanently so bent as to avoid uneven wear upon the rollers, and means for joining said platform members to said chain.

4. In combination in a conveying assembly, a plurality of rollers, a chain, means for driving said chain, a plurality of platform members, each having on its under surface a plurality of track members adapted to contact and rest upon said rollers, said track members being permanently so bent as to avoid uneven wear upon the rollers, and means for joining said platform members to said chain, said members shaped so that the ends of adjacent members overlap with each other.

5. In combination in a conveying assembly, a plurality of rollers, fixed supports therefor, a link chain extending generally along the line of said rollers, means for driving said chain, a plurality of platform members, each having on its under surface a plurality of track members adapted to contact and rest upon said rollers, said track members being permanently so bent as to avoid uneven wear upon the rollers, means for joining said platform members to said chain, said members shaped so that the ends of adjacent members overlap with each other, the whole conveyer arranged to provide an endless conveyer assembly.

6. In combination in an articulated conveying assembly, a plurality of downwardly facing track members, said members being permanently so bent as to avoid uneven wear upon the rollers.

7. In combination in an articulated conveying assembly, a plurality of platform members, each having on its under surface a plurality of downwardly facing track members, said members being permanently so bent as to avoid uneven wear upon the rollers.

Signed at Chicago, county of Cook and State of Illinois, this 20th day of April, 1929.

JOHN J. HARTLEY.