

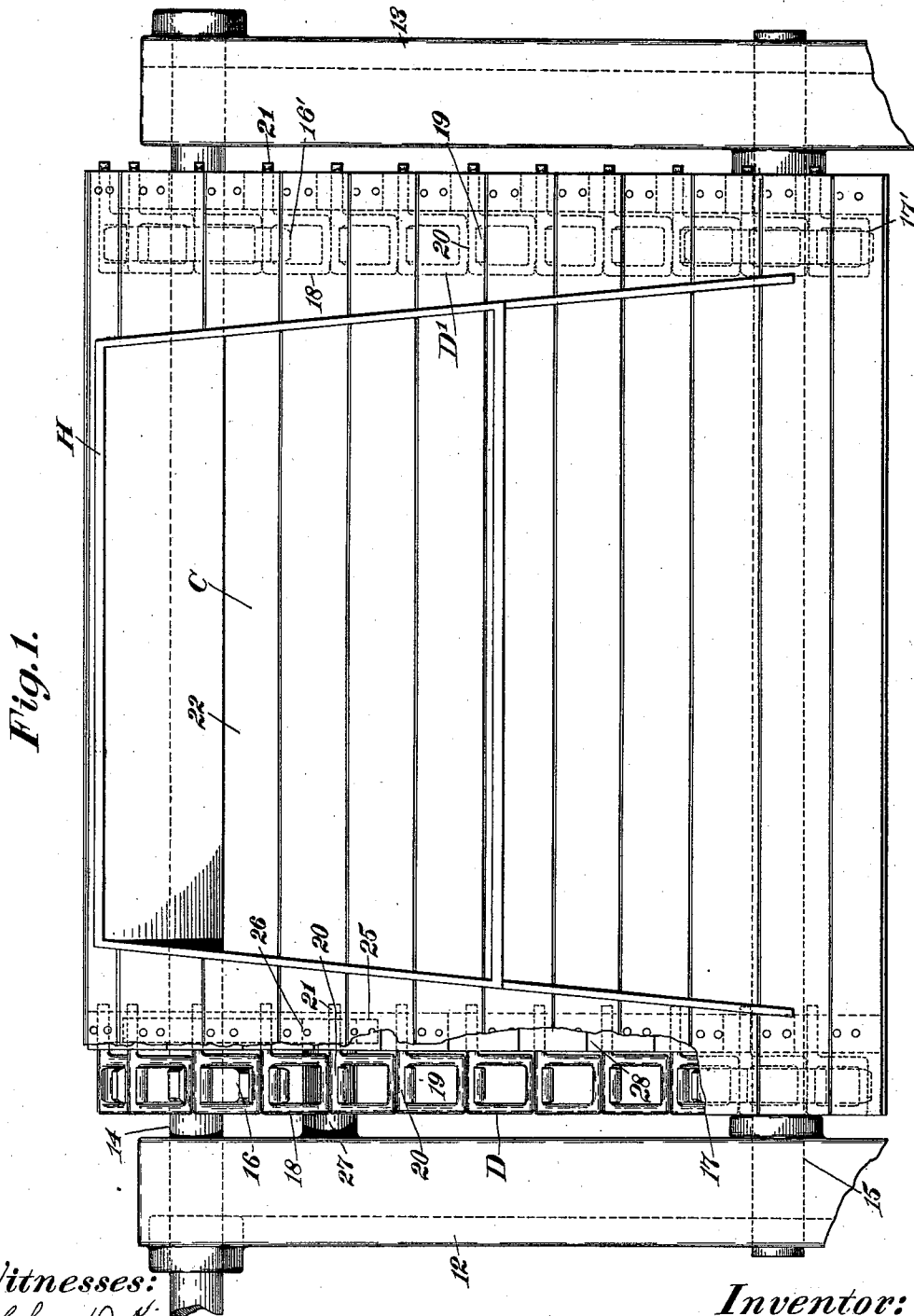
(No Model.)

2 Sheets—Sheet 1.

F. H. RICHARDS.
CONVEYER.

No. 568,583.

Patented Sept. 29, 1896.



Witnesses:
Chas. W. King.
Fred. J. Gole.

Inventor:
F. H. Richards.

(No Model.)

2 Sheets—Sheet 2.

F. H. RICHARDS.
CONVEYER.

No. 568,583.

Patented Sept. 29, 1896.

Fig. 3.



Fig. 4.

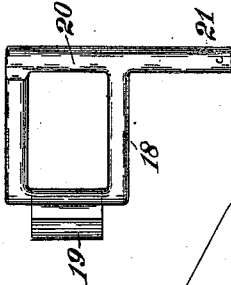


Fig. 2.

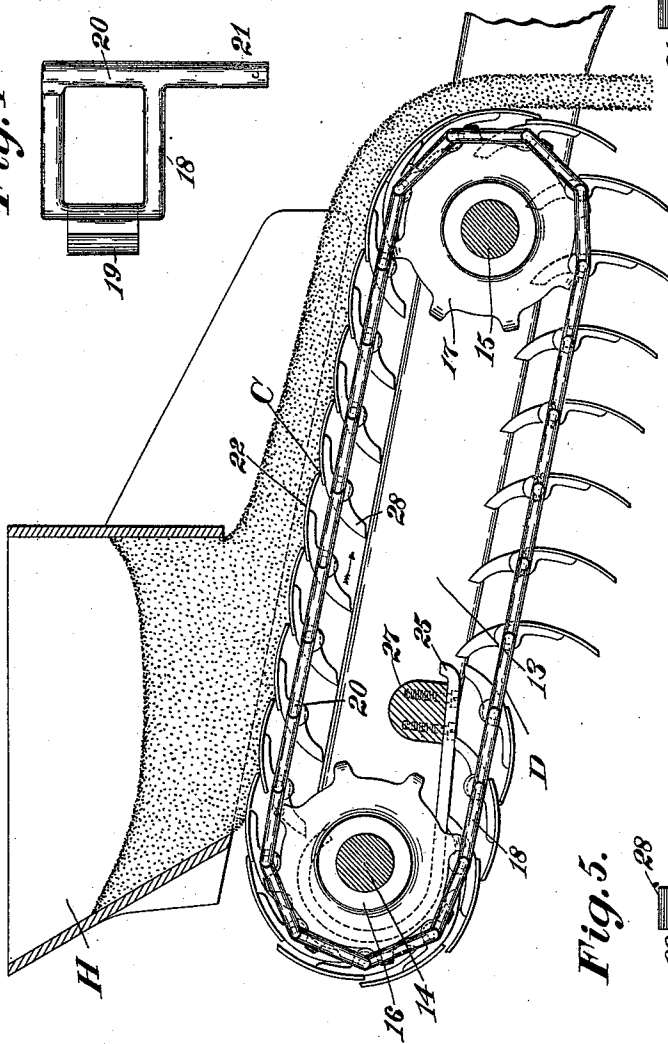
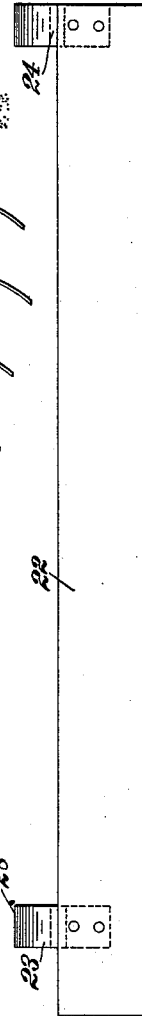


Fig. 5.



Witnesses:

Chas. D. King.
Fred. J. Gole.

Inventor:

F. H. Richards.

UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF HARTFORD, CONNECTICUT.

CONVEYER.

SPECIFICATION forming part of Letters Patent No. 568,583, dated September 29, 1896.

Application filed March 13, 1896. Serial No. 583,015. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

This invention relates to conveyers for various materials, and which are in the nature of a sprocket-chain.

An object of the invention is to provide an improved device of this character in which the conveyer members or bars thereof are removably assembled in place, so that any one or more of the series may be quickly and readily taken from or put in place.

Another object of the invention is to furnish a conveyer embodying members or bars which will separate or spread apart on one of the runs thereof, to permit the free passage therebetween of any of the material which may have leaked between said members on the other run.

In the drawings accompanying and forming part of this specification, Figure 1 is a plan view of my improved conveyer illustrated in connection with a supply chute or hopper. Fig. 2 is a left-hand end elevation of the same with said chute and conveyer-supporting shafts in transverse section, the frame being shown by dotted lines. Figs. 3 and 4 are detail views in elevation and plan, respectively, illustrating one of the links of the conveyer; and Fig. 5 is a detail view in plan of one of the conveyer members or bars.

Similar characters of reference designate like parts in all the figures of the drawings.

Two end frames or members are illustrated at 12 and 13, respectively, which constitute housing or supports for the conveyer-shafts 14 and 15, the opposite ends of the said shafts being journaled in suitable bearings formed in or carried by said end frames. Either one of said shafts may constitute the drive or power shaft, and in practice will be operatively connected with a suitable motor. (Not shown.)

The conveyer, which is designated in a general way by C, and which will be hereinafter more particularly described, is shown located below a hopper or chute of ordinary construction, which will supply a mass of ma-

terial to said conveyer, said chute in turn being supplied with material by suitable elevator apparatus or analogous means.

The chute H is shown provided with end plates which project, respectively, beyond the front and rear walls thereof, and which serve as guards for preventing lateral flow of the material as it emerges from the chute. The direction of movement of the conveyer is indicated in Fig. 2, and on its movement it will convey or feed from said chute a stream of material to be delivered into a suitable receptacle, such as the bucket of a weighing-machine, which is an example of one adaptation of my present invention.

The conveyer, in the preferred form thereof herein shown and described, comprises a drive chain or chains and one or more removable or interchangeable conveyer members or bars, so that any one or more of said members may be readily removed for any purpose—such as for replacing worn or broken members—thereby obviating the necessity of dismantling the entire conveyer, the temporary stoppage of the same being only necessary to effect such a result.

The conveyer members or blades, it will be remembered, are removably assembled in place, and as a means for supporting said members two drive-chains (designated in a general way by D and D', respectively) are herein illustrated, said chains being of the "sprocket" type and shown passed around the sprockets or sprocket-wheels 16 and 16' on the shaft 14 and 17 and 17' on the shaft 15, said sprockets being keyed or otherwise suitably secured to their respective shafts for rotation therewith.

The links of the drive-chains are designated by 18, and each is shown (see Figs. 3 and 4) rectangular in shape and having the hook portion 19, which is slightly less in width than the opening formed in said links, and which embraces the pintle 20 of a preceding link in the series, the undercut or recess being so formed that a succeeding link-hook may be readily slipped on or off said pintle.

Each of the chain-links is shown having a journal or trunnion 21 projecting from one side thereof and in alinement with its pintle 20, the peculiar function of which will be hereinafter described. It will be noticed

also that the journals or trunnions of the two series of links of the chains D and D' project in the same direction. (See Fig. 1.)

The members or feed-bars of the conveyer, which are designated by 22, will be closed on the upper or feed run of the conveyer, and are shown as overlapping, so that a continuous feed-surface is provided; but on the lower run they will be so opened or separated that between each of said members a space is formed to provide for the ready egress of any particles which may work through the conveyer members on the upper run, said particles being caught by a suitable receptacle, or in the case of finely-pulverulent materials, where such a leakage is considerably greater, are delivered into a suitable elevator to be returned to the original source of supply, whereby consequent waste of the material is entirely prevented.

The conveyer members will be pivotally supported by the drive-chains, the projecting journals serving for this purpose. The conveyer members or feed-blades are also illustrated as being segmental, so that when these overlap on the upper run thereof, as hereinbefore described, an undulatory or roughened surface is presented to the mass, which is better adapted to take hold thereof, and also, on the movement of the conveyer, prevents the formation of lumps therein in the case of materials of certain characteristics.

The conveyer members or blades are illustrated provided with the hinge-pieces 23 and 24, the first mentioned of which is illustrated secured adjacent to one end of the segmental feed-blade 22 by rivets, and the other of which is likewise secured at the opposite end of said feed-blade. Each of said hinge-pieces is shown provided with a transverse opening which constitutes a bearing for the journals 21, and which, like said journals 21, are illustrated as being in alinement, and it will be evident that said journals may be readily slipped into or out of their respective bearings in an obvious manner.

In the embodiment thereof herein illustrated (see also Figs. 3 and 4) it will be observed that the journals or trunnions 21 are shown as being in alinement with the pintles 20 or points of pivotal connection of the links in the series, whereby the strength and durability of the chain as a whole is materially enhanced and a free yielding movement of the conveyer members, which are respectively supported by said journals, positively insured, which is extremely important. By reason of this peculiar construction it will be evident that if any great stress be applied to the conveyer or any of the members at any point or points thereon this will be received at the point of pivotal or yielding connection between two or more links of the series rather than at a point intermediate the link-ends, so that in such case the chain will freely yield or give with the conveyer at points of greatest stress thereon, so that liability of snap-

ping and bending of the chain-links is entirely obviated.

The conveyer members 22, it will be remembered, are movably supported and the centers of gravity thereof will be located at one side of the axes of movement when the members are on one of the runs. As illustrated, the centers of gravity are located below the pivots of the conveyer members when these are on the lower run, so that as said members intersect a straight line passing through the axes of the shafts 14 and 15 they will of their own weight separate or assume an open or vertical position, as indicated in the lower part of Fig. 2.

As a means for closing the conveyer members or blades, I have herein illustrated a cam which is located in the path of movement of said members and is operative for engaging a part thereof as these are successively brought into position below said cam on the movement of the conveyer.

A curved or bent bar, constituting a cam for closing the conveyer members, is illustrated at 25, secured by suitable holding means, as screws, to the web portion 26 of the hub or projection 27, formed on or carried by the side frame or member 12. As the conveyer members are moved toward the cam 25 the arms 28 thereof will be successively engaged by said cam and the members oscillated about their pivots for effecting a closure or closing movement thereof, so that when said members reach the upper run they will be all closed, as indicated in the upper part of Fig. 2, the weight of the supported material tending also to maintain the conveyer members closed on said run.

Having thus described my invention, I claim—

1. The combination with a pair of drive-chains, of a series of overlapping floats removably connected thereto and having their centers of gravity located below the points of support thereof when on the lower run, whereby said members will separate or open by their own weight when on said run, and a curved bar disposed in the path of movement of said floats operable for successively closing the same as they approach the upper run.

2. The combination with a chute adapted for containing a mass of material, of a pair of drive-chains located adjacent to said chute; a series of overlapping floats removably connected to said chains and having their centers of gravity located below the points of support thereof when on the lower run, whereby said floats will separate or open by their own weight when on said run; and a curved bar disposed in the path of movement of said floats and operable for successively closing the same as they approach the upper run.

3. The combination with a pair of drive-chains, each of the links of which has a transverse journal, the journals of one series extending in a common direction with those of

the other series; of a series of conveyer members having openings adjacent to the opposite ends thereof for receiving said journals.

4. The combination with a chute adapted
5 for containing a mass of material, of a pair
of drive-chains located adjacent to said chute,
each of said chains having a projecting journal,
the journals of one series being in alignment
10 with those of the other series and transversely
extending from said links; a series of
overlapping floats having openings adjacent

to the opposite ends thereof for receiving the
journals of said links and so supported by
said chains as to separate or open when on
the lower run thereof; and a curved bar dis- 15
posed in the path of movement of said floats
and operable for successively closing the
same as they approach the upper run.

FRANCIS H. RICHARDS.

Witnesses:

FRED. J. DOLE,
HEATH SUTHERLAND.