

(No Model.)

C. H. MORGAN.
CONVEYER.

No. 319,299.

Patented June 2, 1885.

Fig. 1.

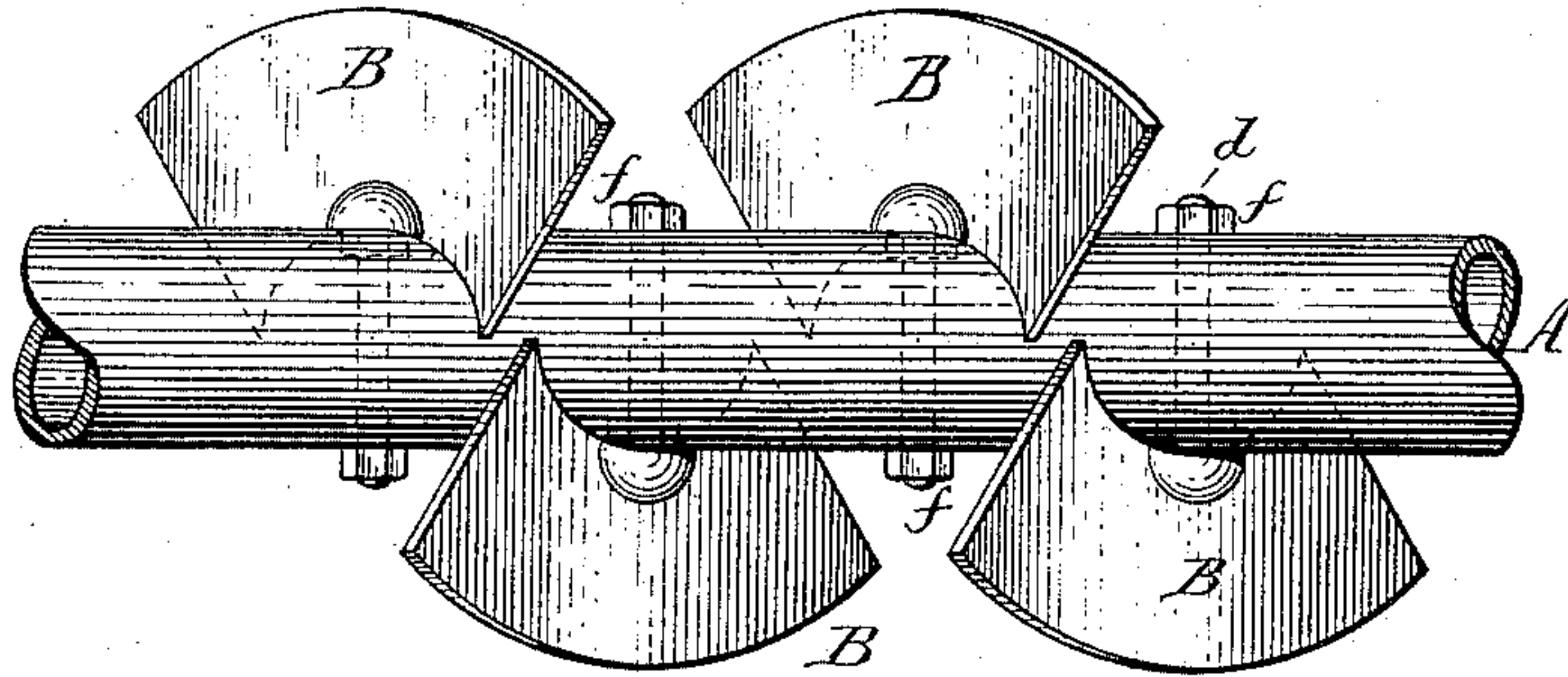


Fig. 2.

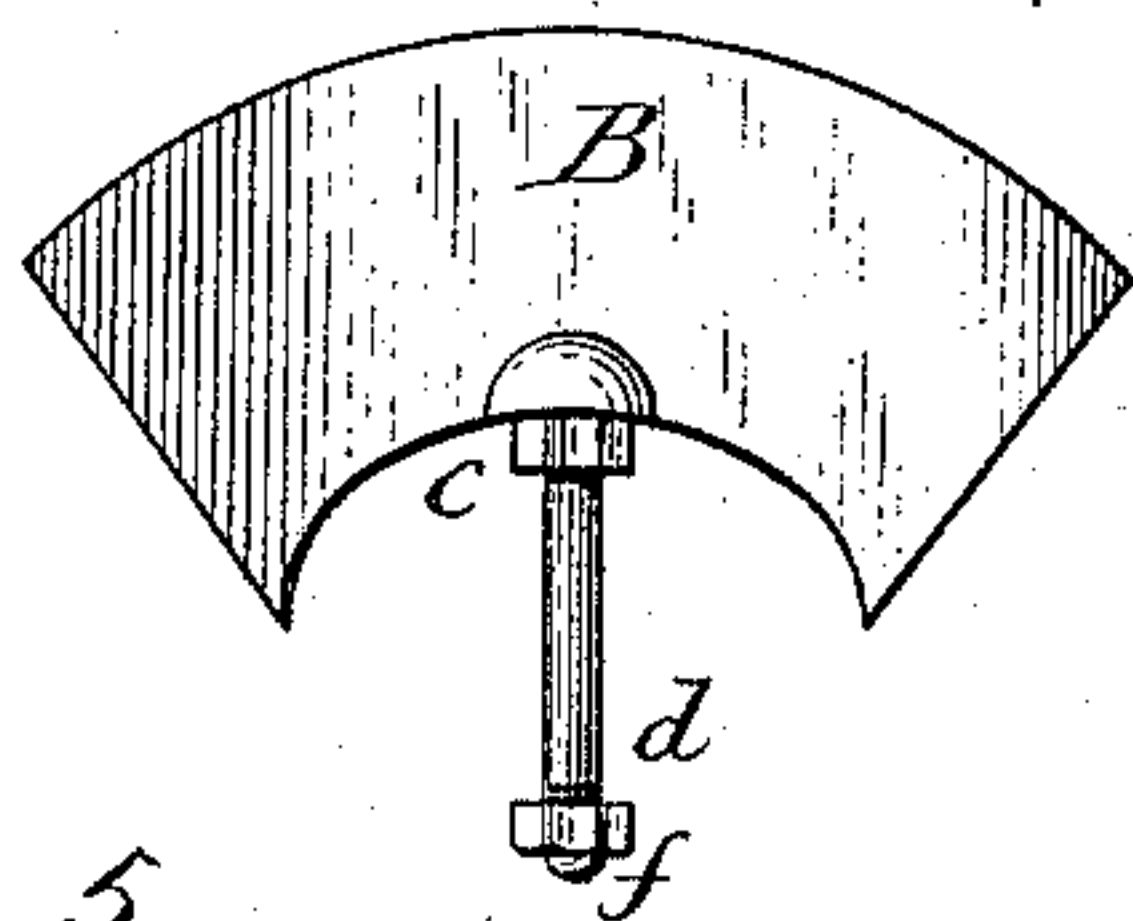


Fig. 3.

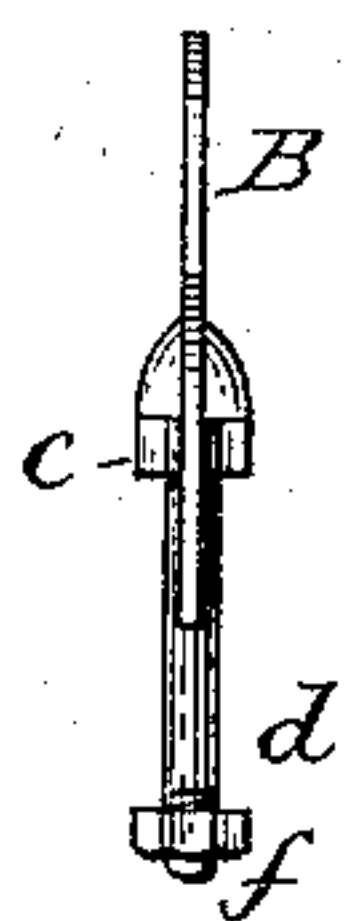


Fig. 4.

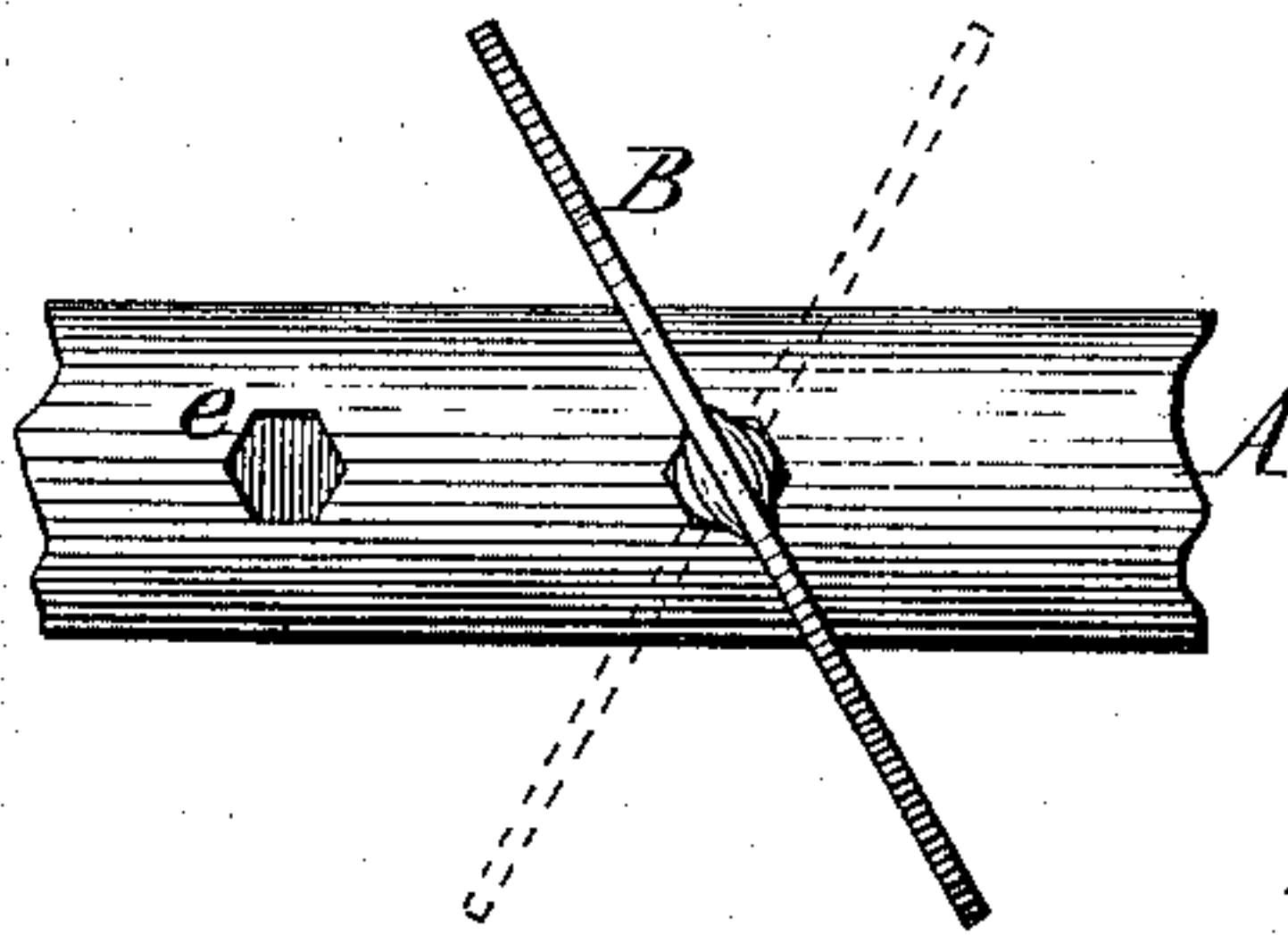


Fig. 5.

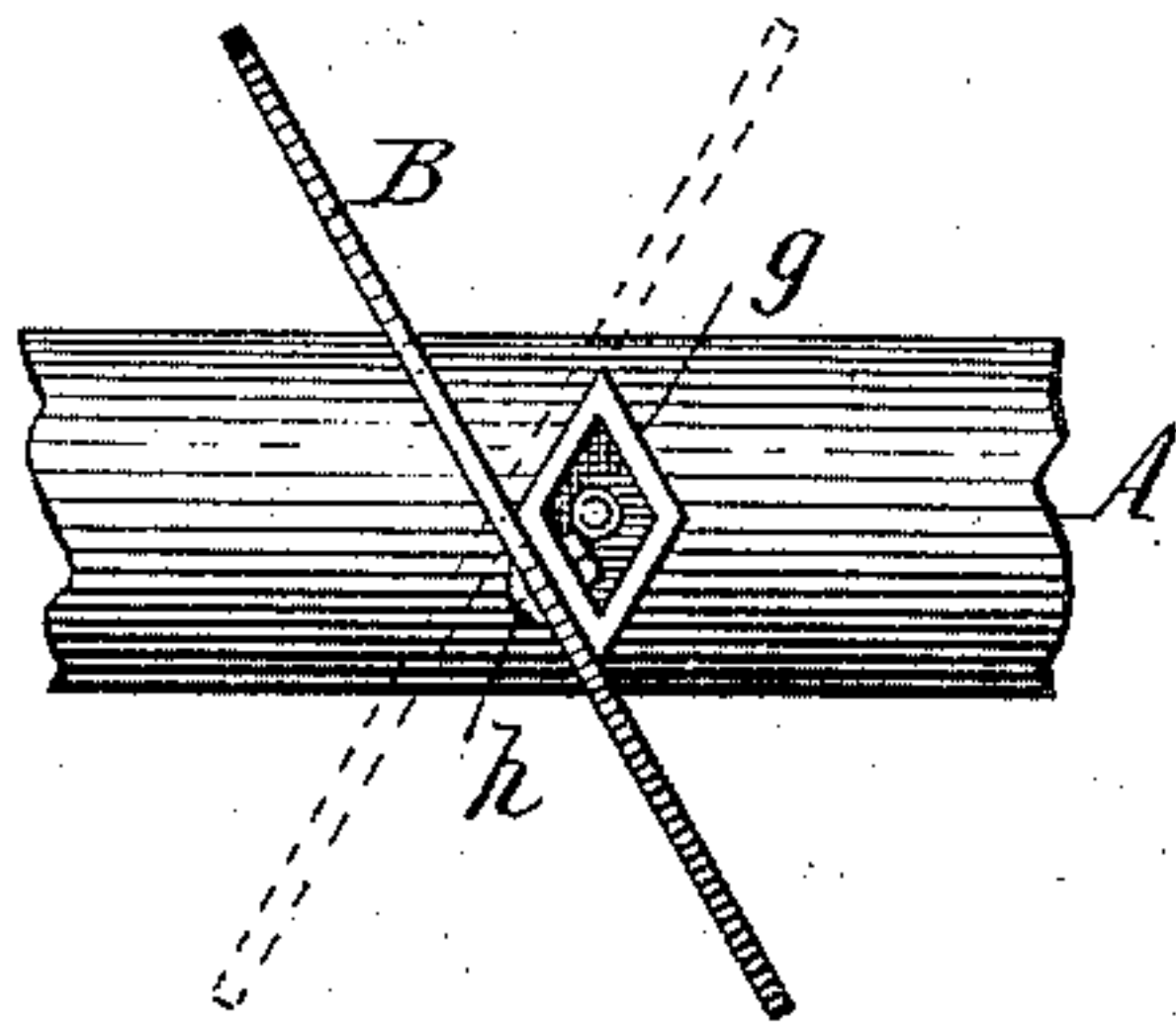


Fig. 6.

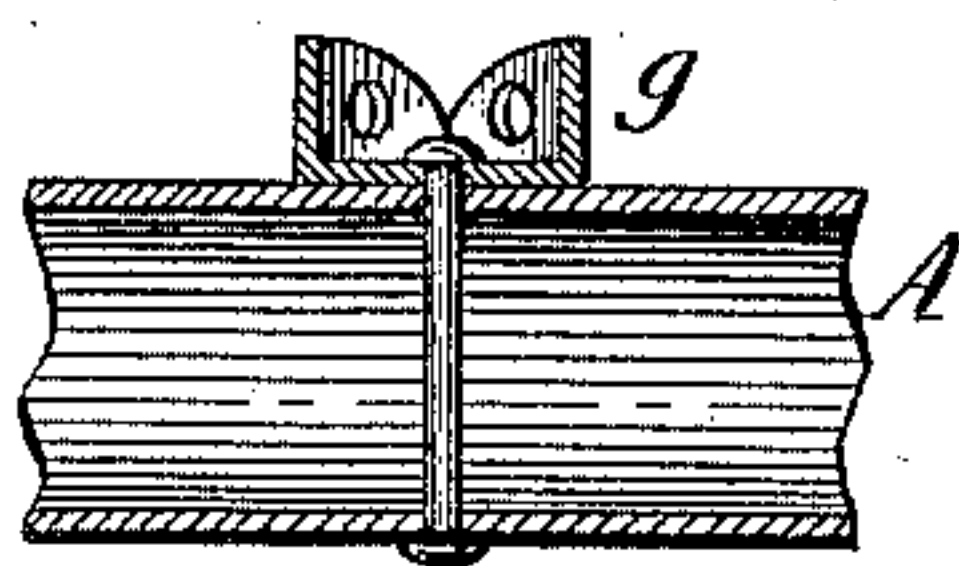


Fig. 7.

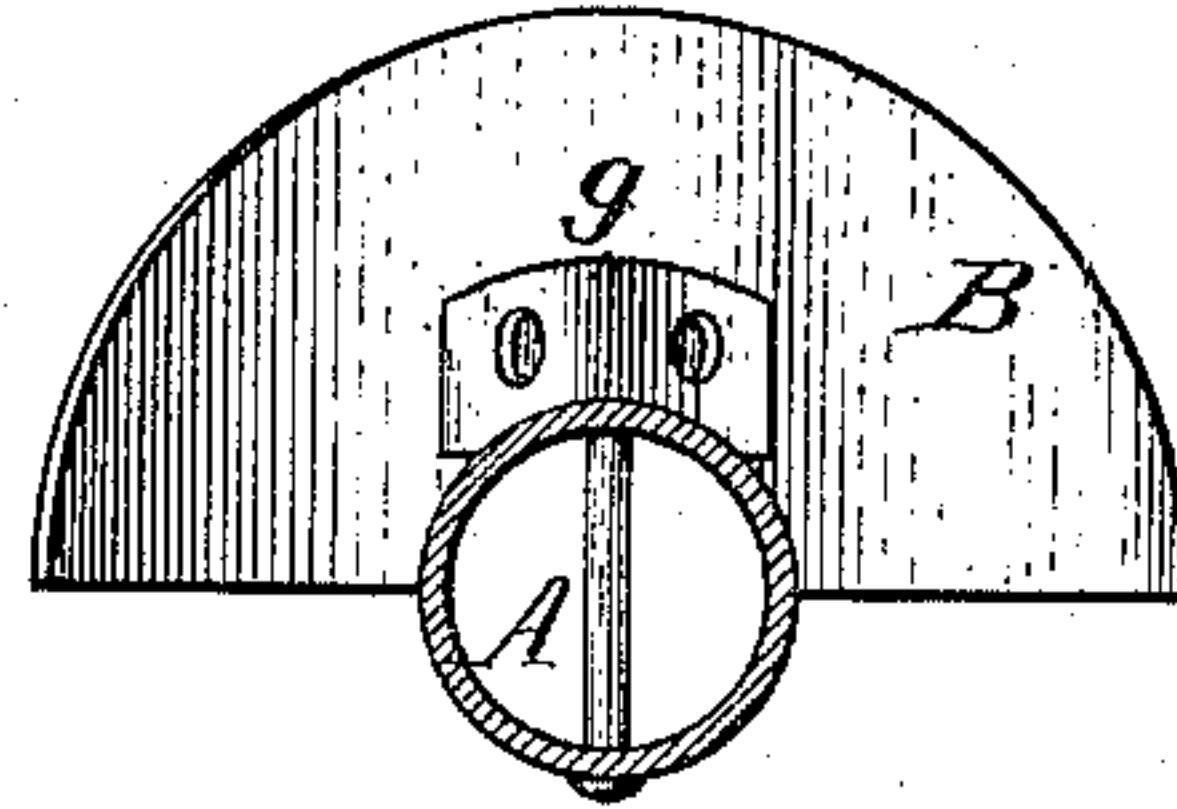


Fig. 8.

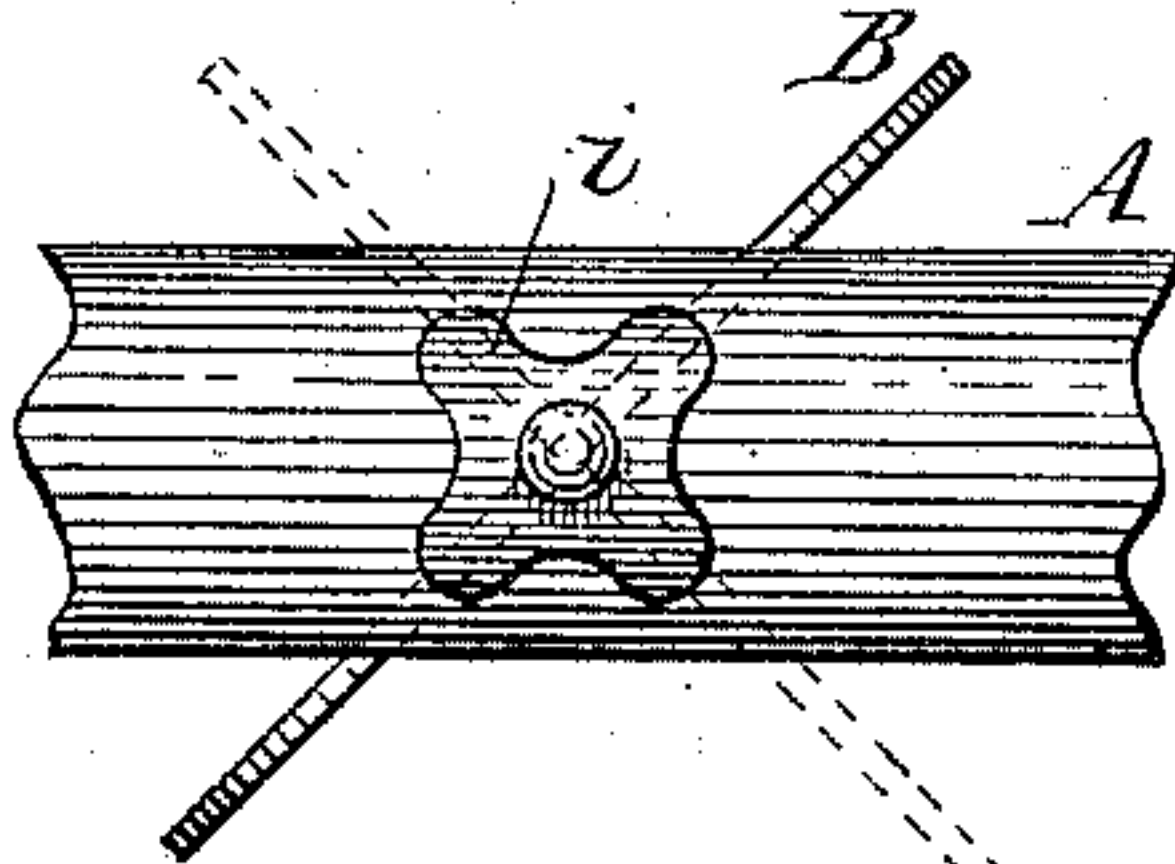


Fig. 11.

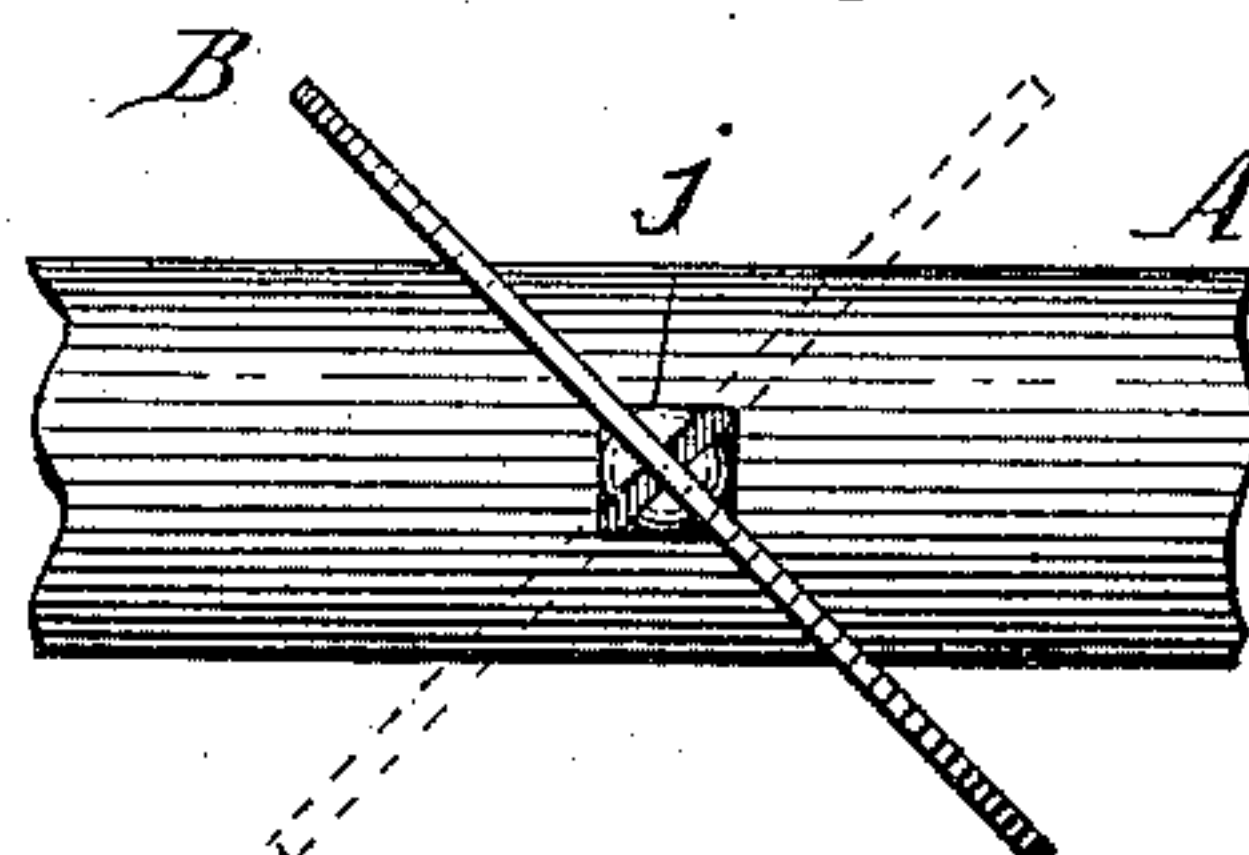


Fig. 9.

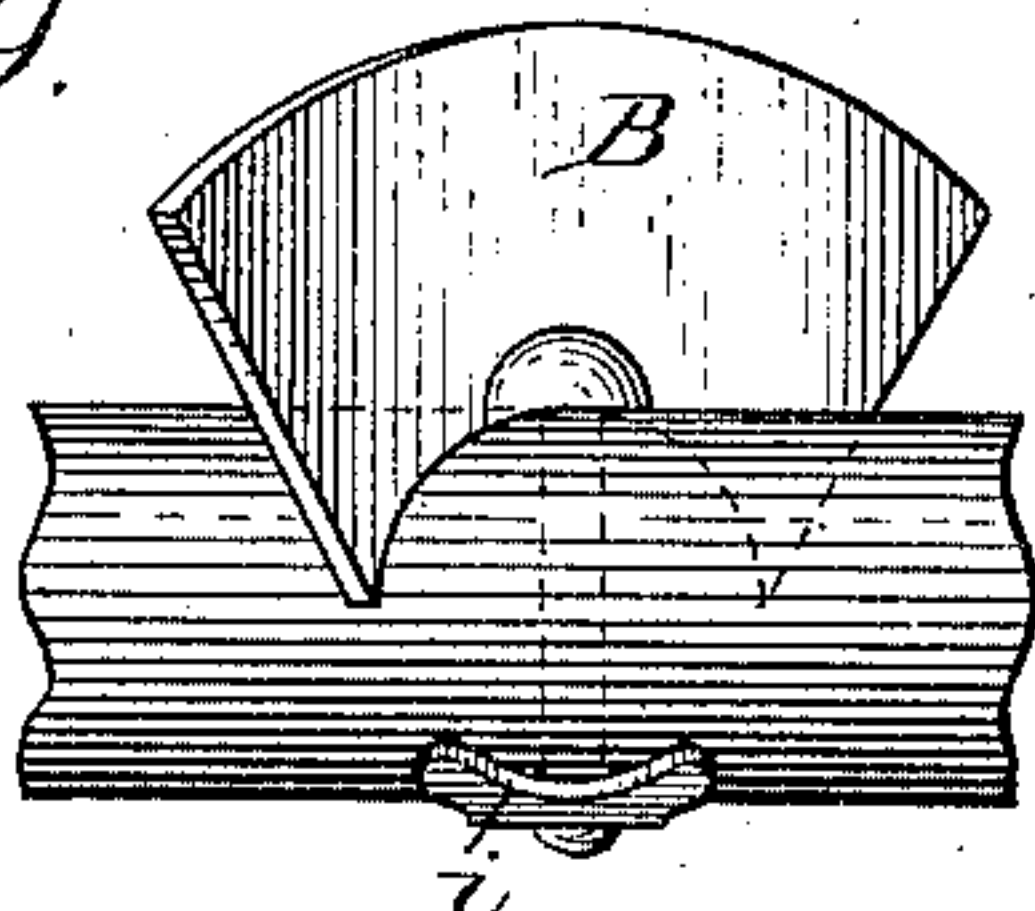


Fig. 10.

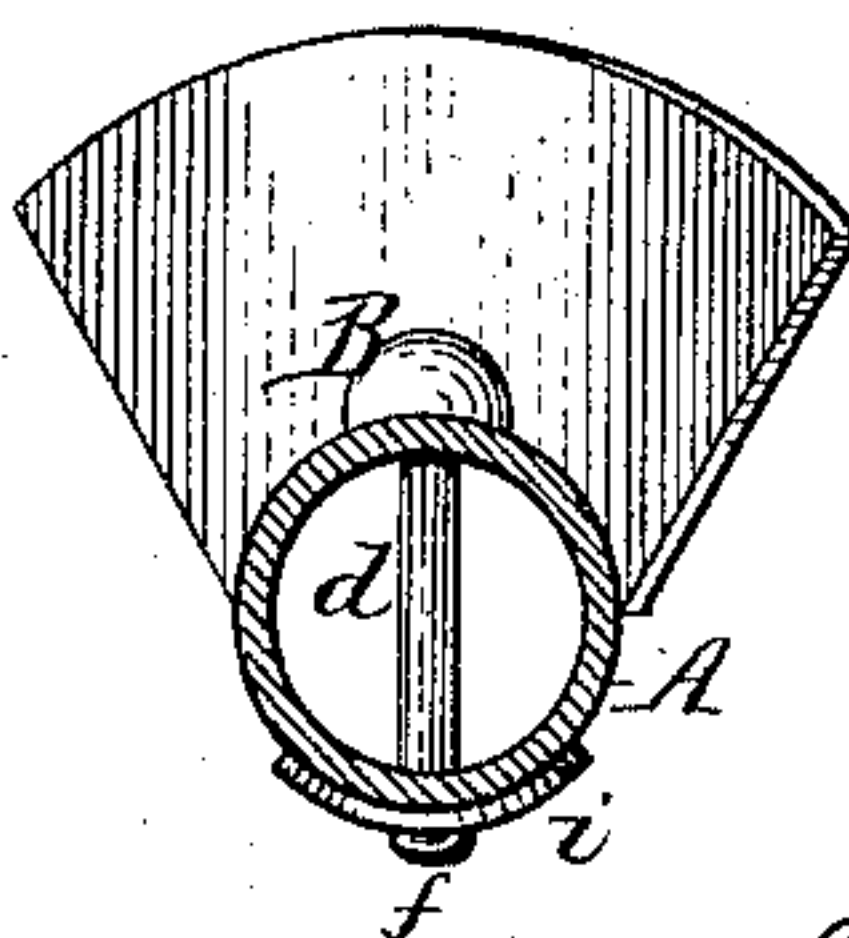
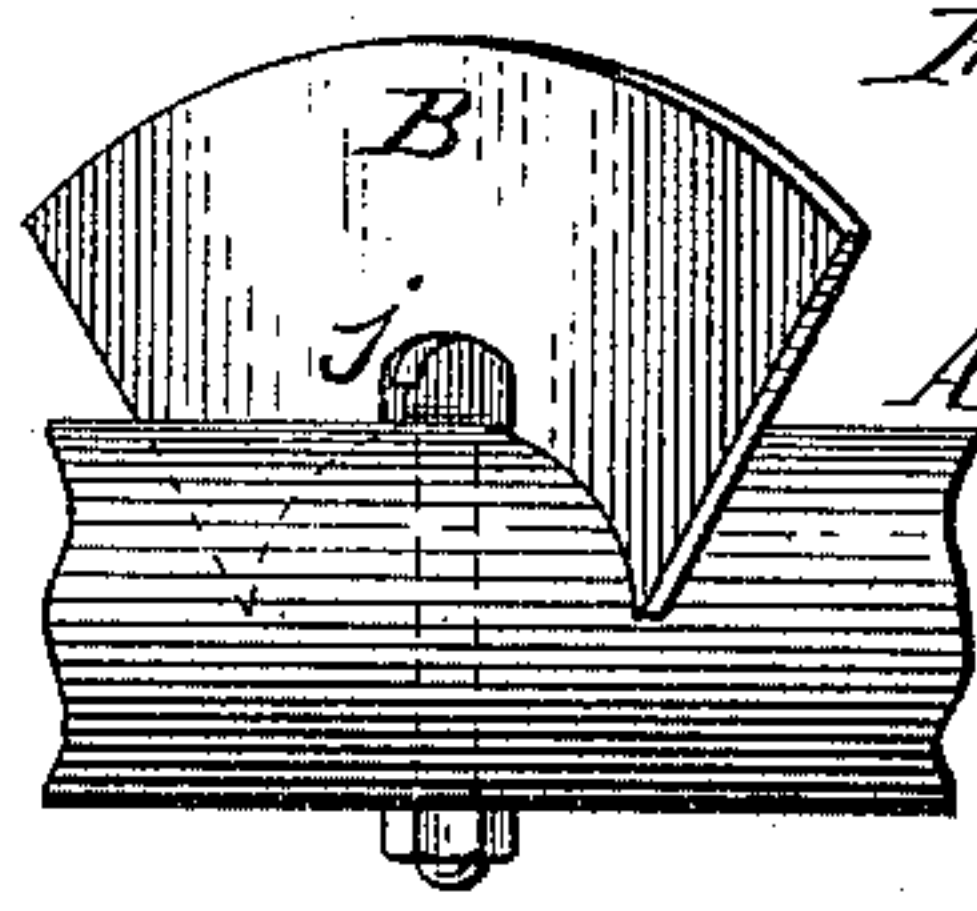


Fig. 12.



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UNITED STATES PATENT OFFICE.

CHARLES H. MORGAN, OF BUFFALO, NEW YORK.

CONVEYER.

SPECIFICATION forming part of Letters Patent No. 319,299, dated June 2, 1885.

Application filed November 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. MORGAN, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Conveyers, of which the following is a specification.

This invention relates to an improvement in metallic screw-conveyers, and has for its object to provide a conveyer with reversible flights which can be easily adjusted to convey the material in one or the other direction, or partly in one and partly in an opposite direction, as may be desired.

My invention consists to that end of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved conveyer. Fig. 2 is a detached elevation of one of the flights. Fig. 3 is an elevation at right angles to Fig. 2. Fig. 4 is a top plan view of one of the flights. Fig. 5 is a top plan view showing a modified construction of the means for securing the flights to the shaft. Figs. 6 and 7 are sectional elevations, at right angles to each other, of the construction shown in Fig. 5. Fig. 8 is a bottom plan view, and Fig. 9 a side elevation, and Fig. 10 a cross-section showing a modified construction of the fastening device. Fig. 11 is a top plan view, and Fig. 12 a side elevation showing a modified construction of the fastening device.

Like letters of reference refer to like parts in the several figures.

A represents the conveyer-shaft, which is preferably composed of a tube in order to render it light.

B represents reversible flights, curved at their inner sides to fit upon the conveyer-shaft, and secured to the latter in such manner that their angle with reference to the axis of the conveyer-shaft can be readily changed, so that they can be made to convey in either direction at the desire of the operator.

In the construction represented in Figs. 1 to 4 each flight B is provided with an angular shank, *c*, and a screw-bolt, *d*, extending from said shank. The latter is seated in a correspondingly-shaped opening, *e*, in the shaft A, whereby the flight is held against turning. The screw-bolt *d* extends through the shaft,

and is secured on the opposite side by a screw-nut, *f*. Upon releasing the latter and lifting the shank *c* out of the angular opening *e* in the shaft the flight can be turned, when, by reinserting the shank in the opening and tightening the nut, the flight is secured in the changed position. The shank *c* and opening *e* are preferably made hexagonal, because this form permits flight to be turned through an arc of sixty degrees in reversing it from right to left, and vice versa, whereby the flight is placed at an angle of thirty degrees to the axis of the shaft, which is very desirable. The flight can be cast in one piece with the shank *c* and screw-bolt *d*, or the bolt *d* and shank *c* can be forged in one piece and riveted to the flight, as may be preferred.

In the construction represented in Figs. 5, 6, and 7, *g* represents a lozenge-shaped casting or support, secured to the shaft and having its side arranged at the proper angle to support the flight. The latter is secured to one side of the support *g* by a screw-bolt, *h*, and the four sides of the support are provided with screw-holes, so that the flight can be secured against either of the four sides of the support, as may be required, in order to give the flight the desired position.

In the construction represented in Figs. 8, 9, and 10 the angular shank on the bolt *d* is omitted, and a concavo-convex spring, *i*, is interposed between the nut *f* and the shaft. This spring extends along the curvature of the shaft on opposite sides of the bolt *d*, so that the spring is strained in reversing the flight by passing over the intermediate convex surface of the shaft, and as the spring resists any force which tends to turn the flight the latter is held by the spring in position on the shaft against accidental displacement, but yields under the strong pressure which is brought to bear on the flight when it is desired to reverse the latter.

In the construction represented in Figs. 11 and 12 a detachable support, *j*, is interposed between the flight and the shaft. This support is made concave to fit against the convex outer side of the shaft, and provided on its opposite side with two intersecting slots, in either of which the flight can be placed. The support is also provided with a central opening,

through which the fastening-bolt *d* passes. Upon releasing the screw-nut *f* and lifting the flight out of the slot in the support *j*, in which it is seated, and placing the flight in the other
5 slot, the flight is reversed.

In mill machinery in which these conveyers are used it frequently becomes desirable to change the direction in which the material is conveyed without changing the direction in
10 which the conveyer rotates. This is readily accomplished by reversing the position of the flights. It also becomes frequently desirable to convey a portion of the material in one direction and another portion in an opposite di-
15 rection by the same conveyer, and this is readily accomplished by placing the flights in different positions on different portions of the conveyer.

My improved conveyer is strong, light, and
20 durable, and produced at comparatively small expense.

I am aware that flights provided with shanks of usual construction have been detachably

secured in openings formed in the conveyer-shaft, and I do not claim such construction. 25

I claim as my invention—

1. The combination, with a conveyer-shaft, of reversible flights, angular bearings or supports which determine the angular position of the flights on the shaft, and fastenings where-
30 by the flights are detachably secured in either of several predetermined positions, substantially as set forth.

2. The combination, with a conveyer-shaft provided with angular openings *e*, of the flights
35 B, provided with fastening-bolts *d*, having angular shanks *c*, which enter the angular openings *e* and hold the flights in the desired inclined position, substantially as set forth.

Witness my hand this 17th day of November, 1884. 40

CHARLES H. MORGAN.

Witnesses:

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