

May 9, 1933.

K. B. LEWIS

1,907,841

COIL HANDLING APPARATUS

Filed July 19, 1929

2 Sheets-Sheet 1

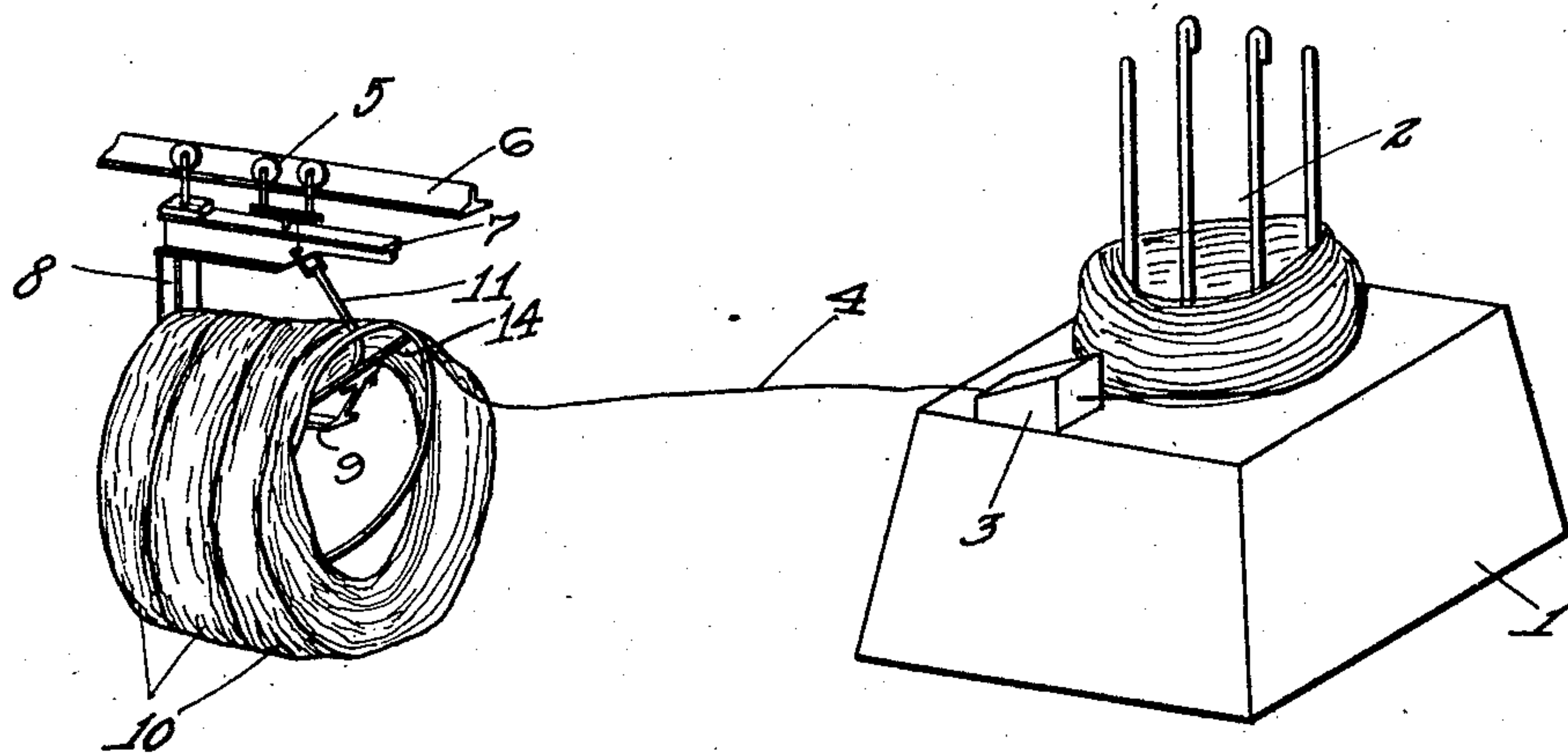


Fig. 1.

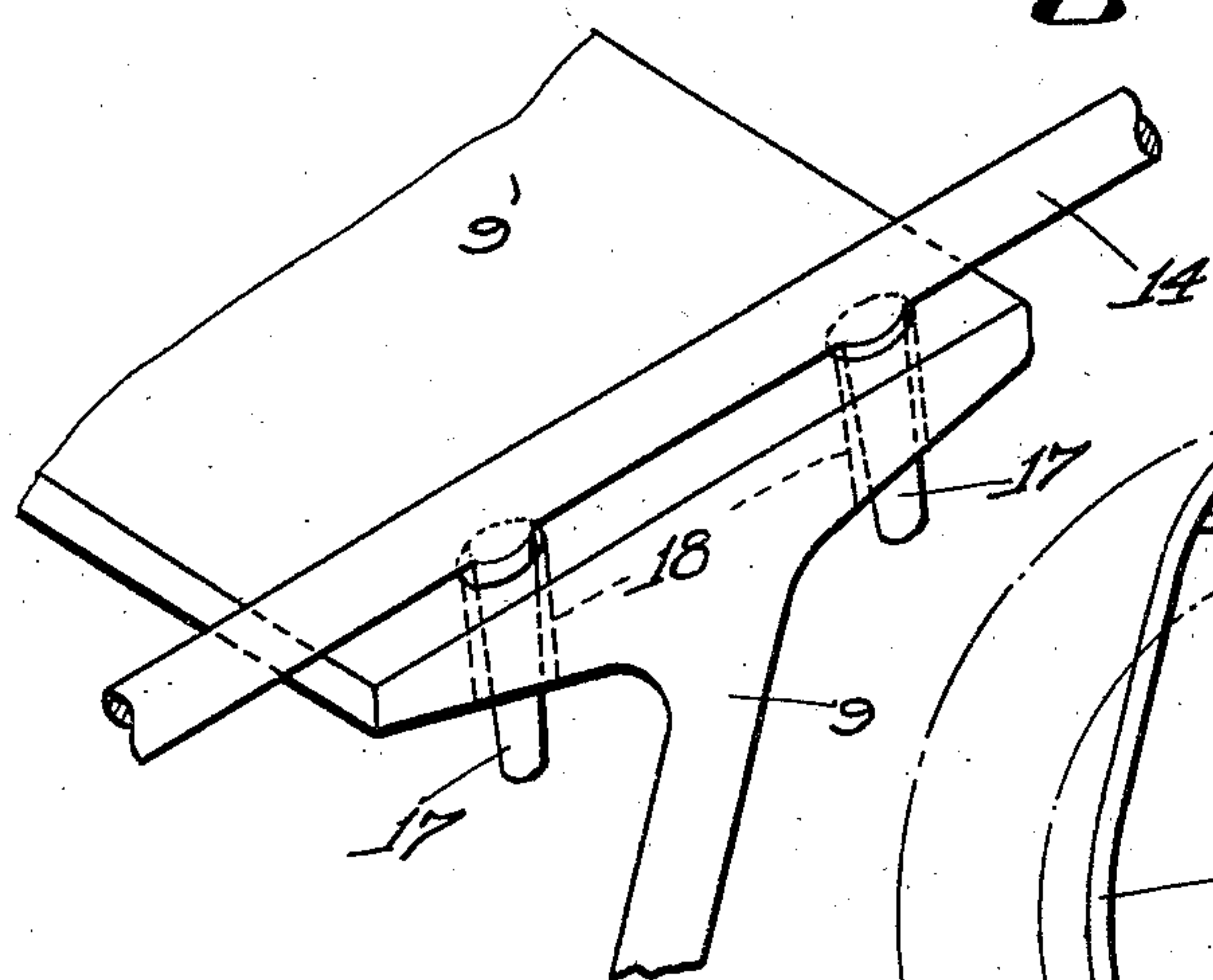


Fig. 5.

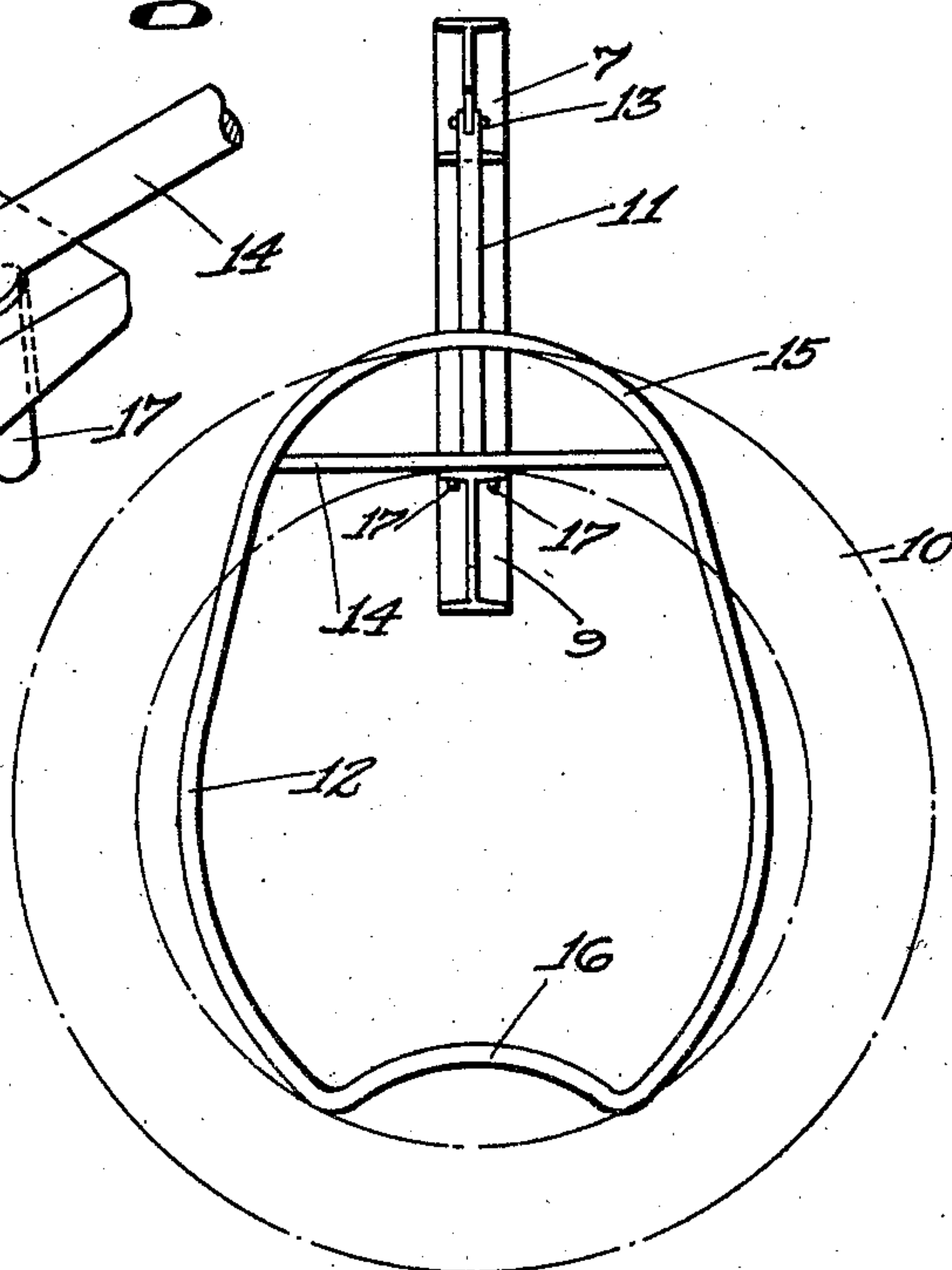


Fig. 2.

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2 Sheets-Sheet 2

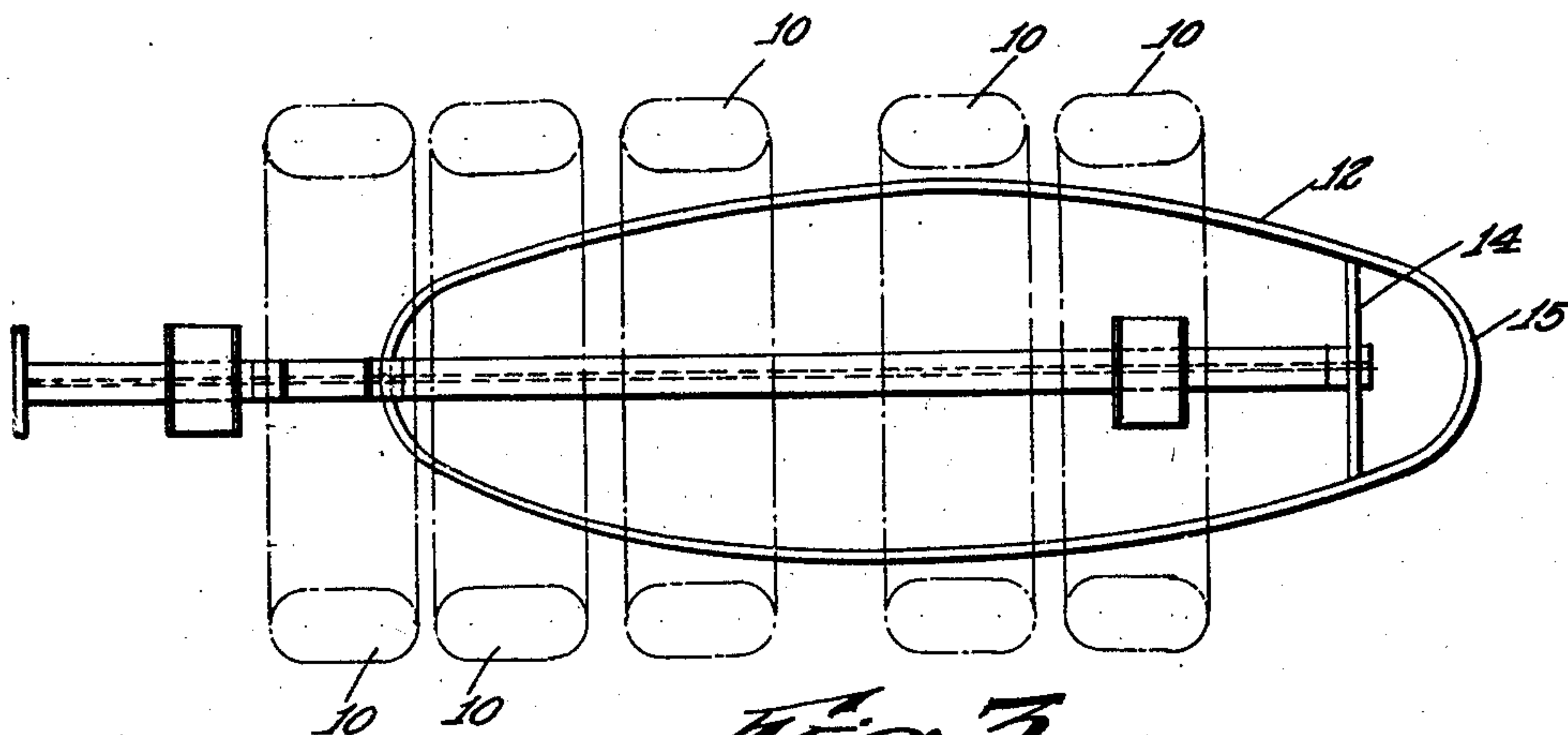


Fig. 3.

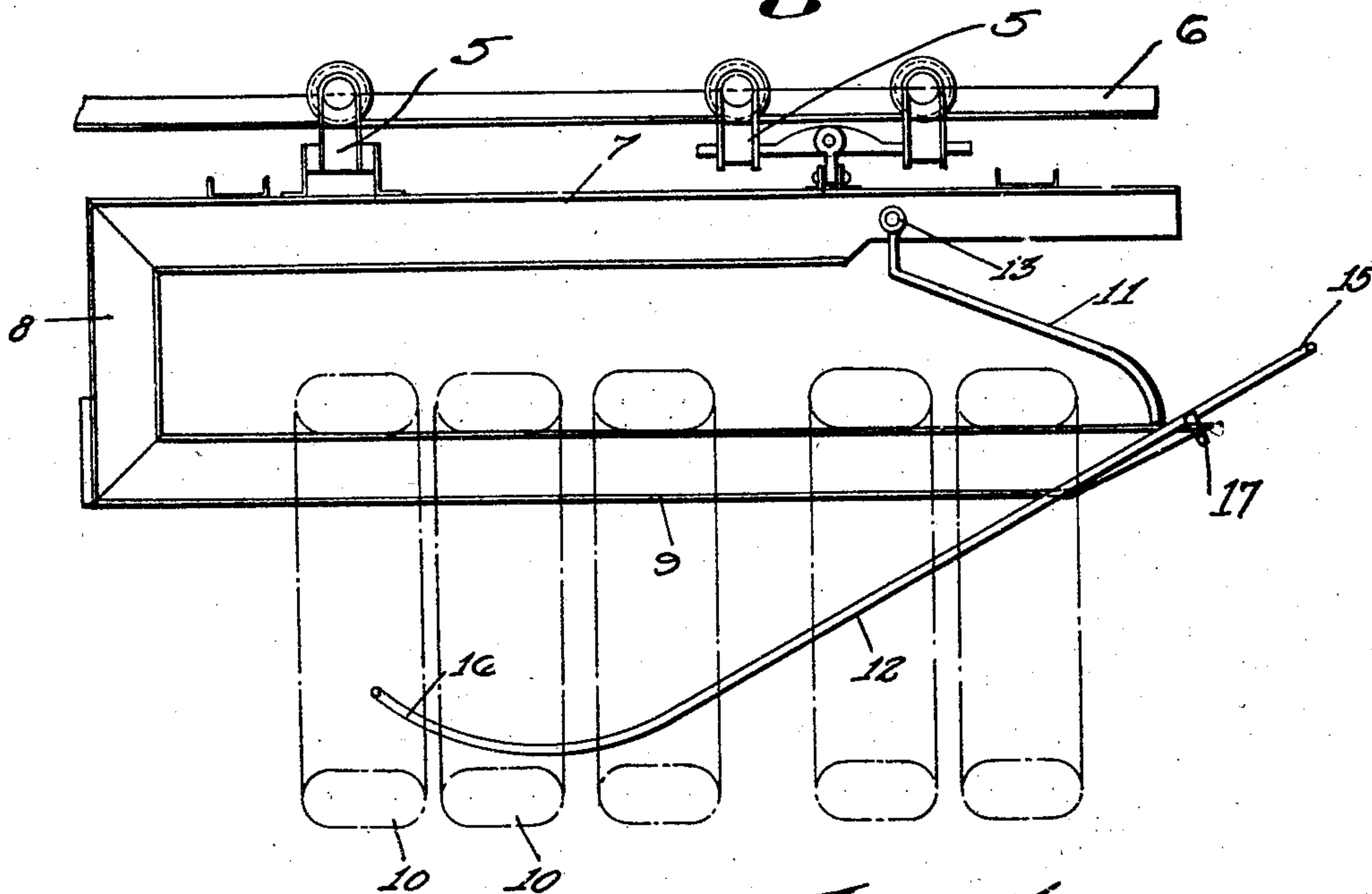


Fig. 4.

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COIL-HANDLING APPARATUS

Application filed July 19, 1929. Serial No. 379,434.

The present invention relates in general to coil handling apparatus. In particular, the invention is concerned with mechanism, associated with transporting apparatus for a plurality of bundles or coils of wire, which secures, in a dependable and continuous manner, the pull-off of successive convolutions of the transported wire, in response, for example, to the demands of a wire-drawing machine.

Heretofore, it has been the general practice, with bundles or coils of wire destined for passage through a wire-drawing machine, to handle said bundles, each weighing upwards of three hundred pounds, individually,—the operator generally being required to drag off each bundle from a truck and to position it manually on the "flipper" or other supply device associated with the wire-drawing machine. All attempts heretofore made to dispense with this laborious and time-consuming operation have ended in virtual failure, principally because of the great difficulty experienced in pulling the wire off uniformly, convolution by convolution, directly from the coil-transporting apparatus.

The present invention completely overcomes this difficulty, and provides, in conjunction with mechanical transporting apparatus for a multiplicity of coils or bundles, a device by which the entire contents or load of said transporting apparatus may be delivered directly to the wire-drawing machine, without need for any intermediate handling or any attention on the part of the machine operator. Other and further objects and advantages of the invention will be apparent from the following detailed description thereof, taken in connection with the accompanying drawings, in which—

Fig. 1 is a perspective view, illustrating the operation of my invention.

Fig. 2 is a view in end elevation of my improved apparatus.

Fig. 3 is a top plan view of the apparatus shown in Fig. 2.

Fig. 4 is a view in side elevation of said apparatus.

Fig. 5 is a fragmentary detail view in per-

spective, on a larger scale, of certain positioning devices.

Like reference characters refer to like parts in the different figures.

Referring first to Fig. 1, there is shown, schematically, any conventional type of wire-drawing bench 1 equipped with a rotary block or drum 2 for pulling the wire through a reducing die 3,—the drawing unit 2, 3, as illustrated, being applicable either to a single block drawing operation, or to a multiple block or "continuous" drawing operation, in series with a plurality of other blocks and dies, not shown. The supply of wire 4 for such drawing operation does not come from a single coil or bundle placed on the usual "swift" or "flipper" adjacent the wire drawing bench, as shown for example by United States Letters Patent to Sommer, No. 951,996, dated March 15, 1910; instead, according to my invention, the supply of wire 4 is taken directly from the apparatus which serves for the transportation of a multiplicity of wire coils or bundles to the immediate vicinity of the bench 1.

Such transportation apparatus is here shown as consisting of an overhead truck or carrier 5 whose wheels run on a suitable tram rail 6; said carrier 5 has attached to its underside the upper member 7 of an elongated "hairpin" hook 8, the lower member 9 of which serves for the impalement and suspension of a plurality of wire coils or bundles 10, 10. The use of such an elongated hook 8 for the transportation of coiled rods is well known in the art; being shown, for example, in United States Letters Patent to Bennington, No. 1,546,364, dated July 21, 1925. My invention is only incidentally concerned with the use of the hairpin hook 8 as a coil-transporting means; the particular concern of my invention is the equipment of such a hook, or its equivalent coil suspending and transporting device, with instrumentalities that permit the wire of the suspended coils to be passed directly therefrom to the wire-drawing mechanism of bench 1, without any need for dismounting the bundles 10 from the hook 8, or for separate handling of said bundles.

In this connection, it is to be noted that

such a delivery must of course take place from the open end of hook 8, and furthermore, that the condition of the usual rod coil or bundle 10, particularly as thus suspended, involves a more or less disorderly arrangement and crossing back and forth of its separate convolutions, such that the draft of drum 2 on the wire 4 might very readily, in the absence of suitable restraining devices, pull one or more of the bundles 10 partially or entirely off the hook 8, thus causing a hopeless tangle of the wire upon the floor in front of the bench 1. As a means to insure orderly withdrawal, one convolution at a time, the hook 8 is equipped with cooperating devices 11 and 12, the former of which comprises a downwardly curved bar, having a pivotal support at 13 to the upper hook member 7, at a considerable distance inward of the open end of the hook, and with its free end adapted to rest by gravity on the lower hook portion 9, substantially at the extreme end thereof. The other member 12 takes the form of an elongated loop, of substantially the contour of a snowshoe, said loop member 12, near one end, providing a cross bar 14 by which it is attached to the extremity of the hook portion 9, in such manner that the major portion of said loop member 12 hangs down from portion 9 in the generally inclined position shown in Fig. 1, being thus inclosed by each of the several hanging coils 10, 10. The cross bar 14 is spaced sufficiently from the adjacent end of loop 12 to project said end, as shown at 15, as an inclined obstruction above and beyond the extremity of the hook portion 9, and the opposite end of loop member 12 is curved upwardly, as shown at 16, to permit the rearward projection of said loop through the suspended bundles 10, 10 without its becoming interlaced with the individual convolutions of said bundles.

The cross bar 14 of elongated loop member 12 provides a means for the attachment and positioning of said loop member on the extremity of the hook portion 9, said means preferably taking the form of a pair of projections 17, 17 on said cross bar, which are received in corresponding holes 18, 18 of the upper surface of hook portion 9. When the elongated loop 12 is projected, rear end 16 foremost, through a plurality of suspended wire bundles 10, 10, the upward curvature of said rear end 16 tends to keep said loop clear and free of entanglement with the convolutions on the interior of said bundles. Thus, said loop can be pushed rearwardly from the front end of the bundles 10, 10 until the projections 17, 17 of cross bar 14 are in registry with the openings 18, 18 of hook portion 9, and when said projections are received in said openings, the loop 12 is retained, detachably, in its operative position, where it finds a front support on the suspension member of the bundles 10, and a rear

support on the inner surfaces of the suspended bundles. In this position, the extreme front end 15 of loop 12, beyond the point of front support, provides an uphill extension of the suspension member beyond the point of action of the pivoted device 11, the latter serving, by the yieldable contact of its free end with the surface of hook portion 9, to restrain the convolutions of wire in such manner as, under ordinary circumstances, to release said convolutions one by one for frontwise movement, under the influence of tension on the wire 4. If, however, a plurality of convolutions happen to be drawn past the separator bar 11, the restraint imposed by the uphill inclination of the end 15 of loop 12 is sufficient to prevent their being pulled off in a mass; instead, the pull-off proceeds in orderly fashion, one convolution at a time because of the opportunity and space thus afforded for the convolutions to separate themselves before their discharge from the loop, and because the loop is of sufficient width in the vicinity of the cross bar 14 to keep the convolutions distended, instead of letting them be drawn into a smaller compass.

By the use of my invention, which is readily applicable to any hook carrier for a plurality of wire bundles 10, 10, the entire mass of wire on said carrier can be drawn off directly, convolution by convolution, without the necessity for any manual labor whatsoever in handling the bundles and without shifting the same from said carrier on to the floor.

I claim,

1. In apparatus of the class described, a travelling carrier for the suspension and transportation of bundles or coils of wire, a pivoted clicker bar having its free end resting on the suspension surface of said carrier, to restrain and separate the individual wire convolutions in the pull-off of wire from said carrier, and a member supported by said carrier and received within said coils or bundles to maintain their convolutions distended, said member cooperating with said clicker bar to permit the discharge of said convolutions, one at a time, from the free end of said carrier.

2. In apparatus of the class described, a hook carrier for the transportation of bundles or coils of wire, a pivoted clicker bar having its free end resting on the suspension surface of said carrier, to restrain and separate the individual wire convolutions in the pull-off of wire from said carrier, and a member insertable within said coils or bundles to maintain their convolutions distended, said member cooperating with said clicker bar to permit the discharge of said convolutions, one at a time, from the free end of said carrier, and said member providing, beyond the point of action of said clicker bar, an up-

ward incline from the suspension surface of said hook carrier.

5 3. The combination with a suspension carrier for the transportation of bundles or coils of wire, of means associated with said carrier, for restraining the pull-off of wire from the end of said carrier, to successive convolutions, one at a time, said means being supported near one end by said carrier, and at
10 the opposite end on the interior of said coils or bundles.

15 4. The combination with a suspension carrier for the transportation of bundles or coils of wire, of means associated with said carrier, for restraining the pull-off of wire from the end of said carrier, to successive convolutions, one at a time, said means being insertable axially within said coils or bundles, and held in operative position by engagement
20 with said carrier, beyond said coils or bundles.

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