

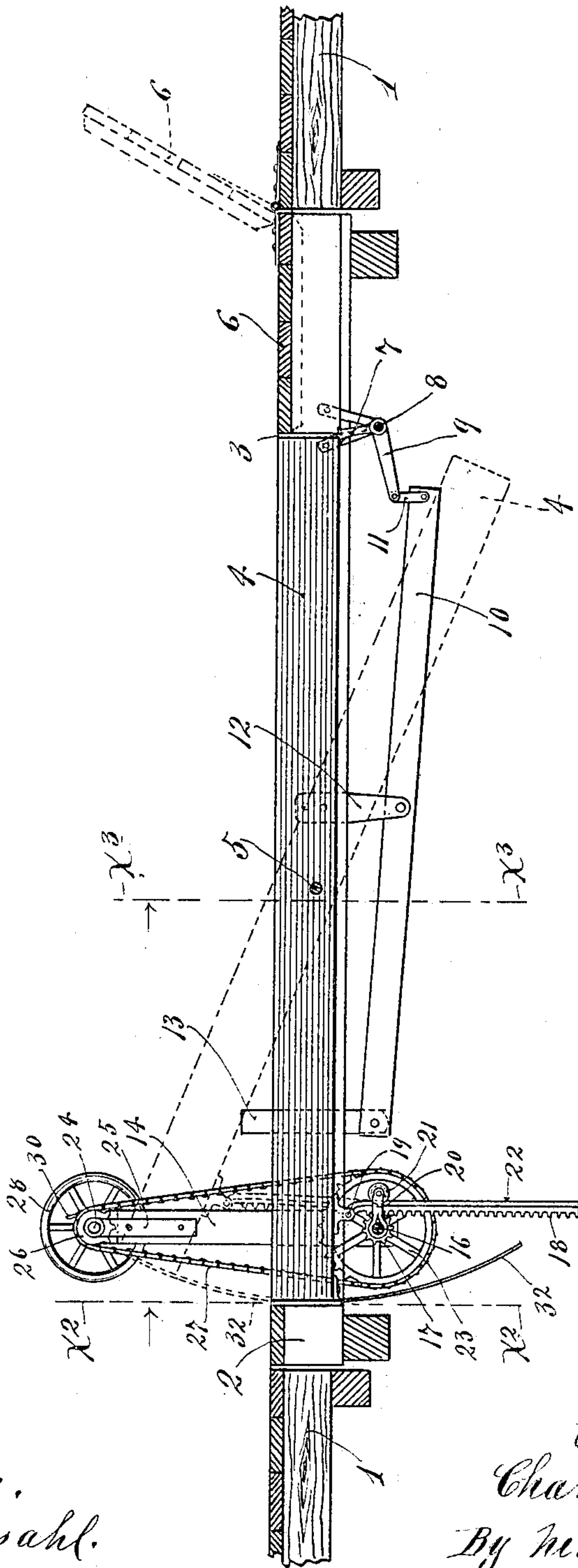
No. 801,505.

PATENTED OCT. 10, 1905.

C. E. BIRD.
DUMPING PLATFORM.
APPLICATION FILED SEPT. 10, 1904.

2 SHEETS—SHEET 1.

Fig.



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2 SHEETS—SHEET 2.

Fig. 2

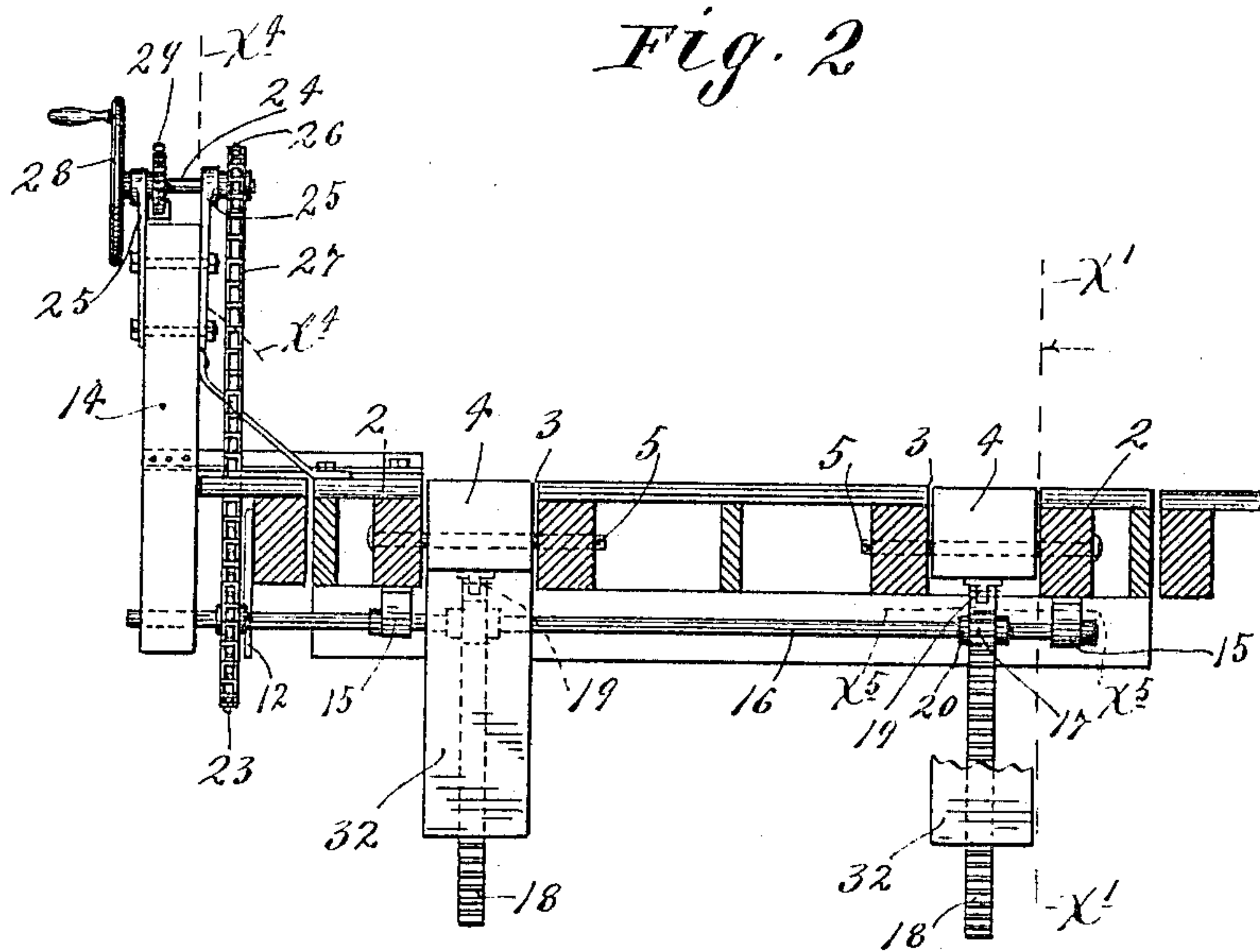


Fig. 3.

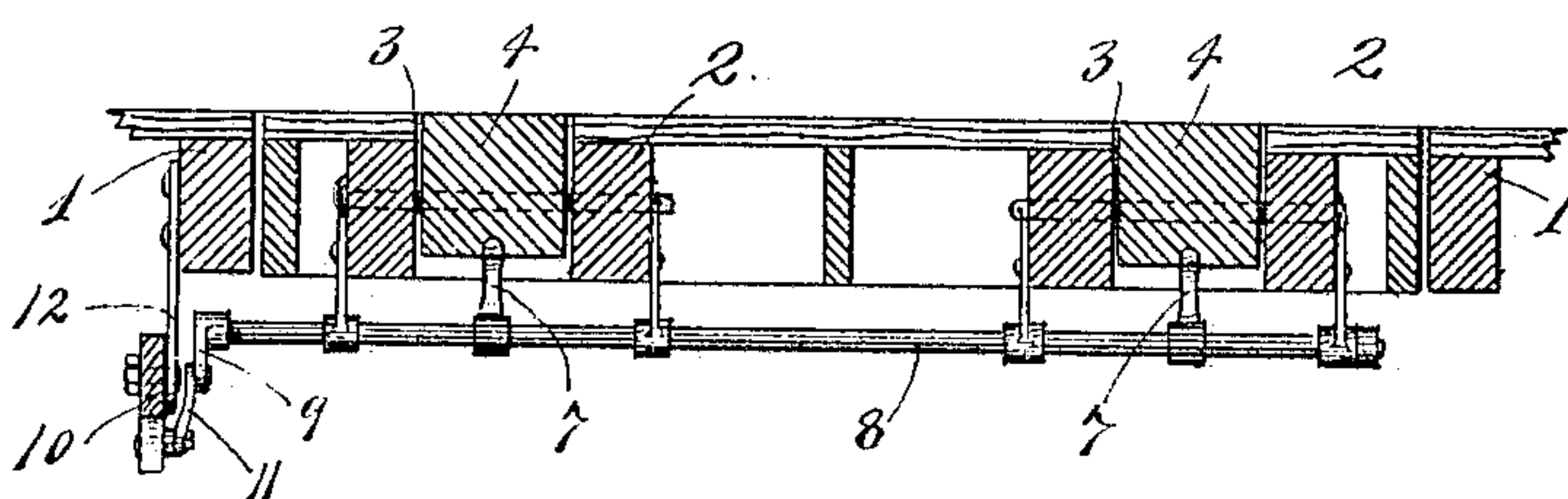


Fig. 5.

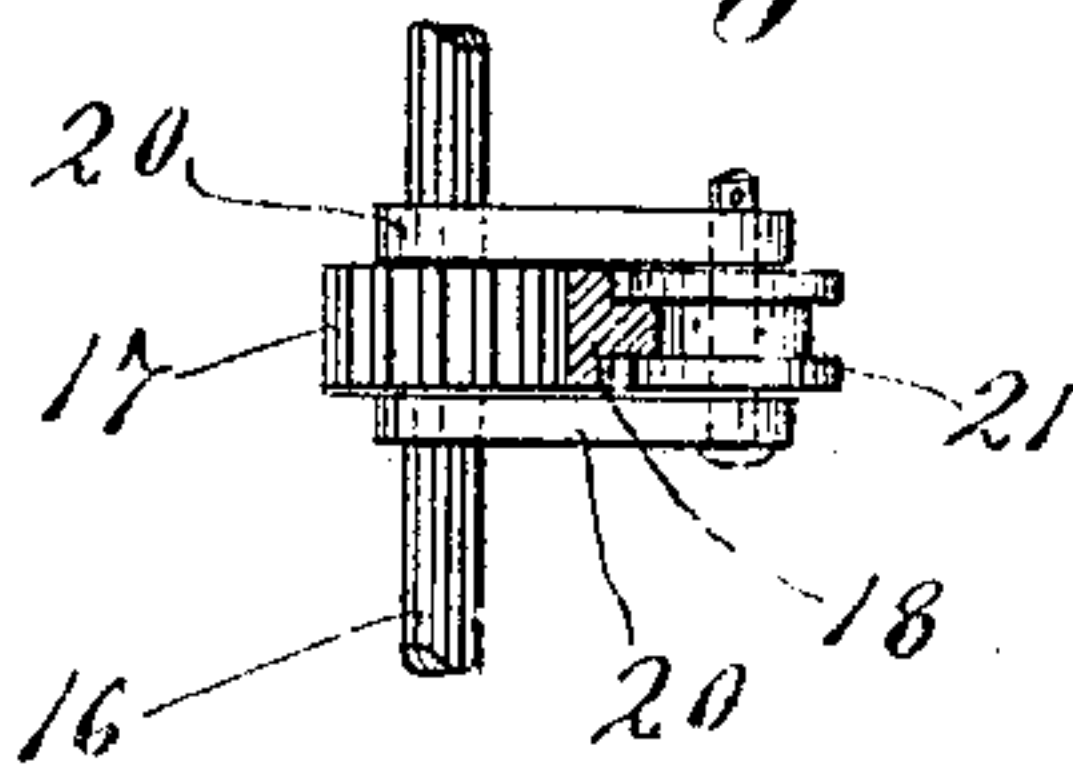
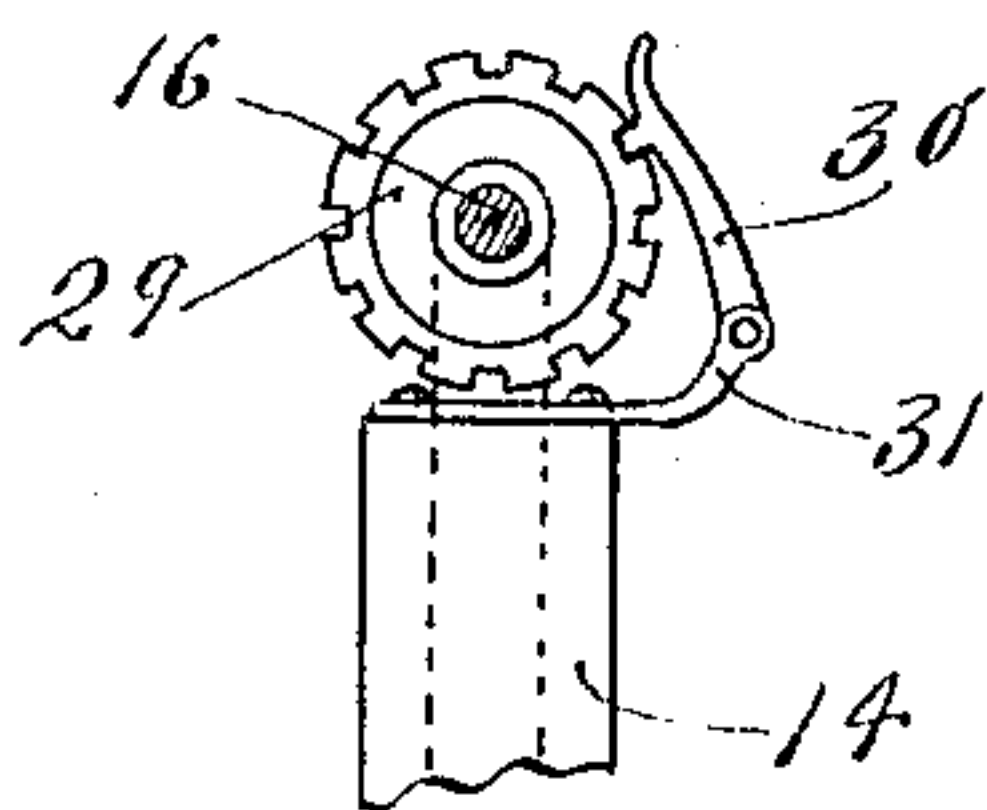


Fig. 4



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UNITED STATES PATENT OFFICE.

CHARLES E. BIRD, OF MINNEAPOLIS, MINNESOTA.

DUMPING-PLATFORM.

No. 801,505.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed September 10, 1904. Serial No. 223,957.

To all whom it may concern:

Be it known that I, CHARLES E. BIRD, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Dumping-Platforms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to so-called "dumping-platforms," such as are used at grain-elevators and various other places and usually in connection with weighing-scales for tilting loaded wagons to dump the loads therefrom.

My invention has for its especial object to provide an improved operating device for such dumping-platforms; and to such ends it consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a vertical section taken on the line $x'x'$ of Fig. 2 and illustrating my invention as applied to the tilting platform-beams of the platform of a weighing-scale. Fig. 2 is a transverse vertical section taken on the line x^2x^2 of Fig. 1. Fig. 3 is a transverse vertical section taken on the line x^3x^3 of Fig. 1. Fig. 4 is a detail in section on the line x^4x^4 of Fig. 2, and Fig. 5 is a detail in horizontal section, taken approximately on the line x^5x^5 of Fig. 2.

The numeral 1 indicates fixed platform-sections of a driveway, and the numeral 2 indicates a scale-platform which is interposed in the driveway and is supported by scale levers and beams in the usual way. (Not shown and not necessary for the purposes of this case to consider.) The scale-platform 2 has longitudinally-extended passages 3, in which are located parallel tilting platform-beams 4, which are properly positioned and so spaced apart that the wheels of a wagon on the scale-platform will rest directly on said beams. At their central portions the beams 4 are pivoted on rods 5, which, as shown, are passed directly therethrough and through adjacent longitudinally-extended beams of the scale-platform 2.

As shown in Fig. 1, a hinged floor-section 6 is connected to the right-hand section of the driveway-platform 1 and projects into a seat formed in the adjacent end of the scale-plat-

form. This hinged door-section 6 is adapted to be raised, as shown by dotted lines in Fig. 1, to permit the load to be dumped through the scale-platform from the wagon-box when the beams 4 are tilted, as shown by dotted lines. As shown, the tilting beams 4 are normally locked to the scale-platform and against tilting movements by lock-dogs 7, carried by a transverse rock-shaft 8, having at one end an arm 9. The arm 9 is connected to a trip-lever 10, as shown, by a link 11, which lever is pivoted at its intermediate portion to a depending bearing 12 on the driveway-platform 1. At its free end the trip-lever 10 has a foot-piece 13, that works upward through the runway-platform at one side of the scale-platform. By stepping on the foot-piece 13 the rock-shaft 8 will be rocked and the tilting beams 4 will be released.

The construction so far described is standard or usual construction. As a device for operating or for positively imparting tilting movements to the dumping-platform or to the tilting beams thereof it has usually been common to rigidly connect a large segmental gear to each tilting or dumping beam and to provide coöperating intermeshing pinions mounted on a relatively fixed part and provided with means for turning the same. This construction has the serious object that accuracy both in the construction and location of the segmental gear and its coöperating pinion is necessary. For instance, the said gear and pinion should have their pitch-lines arranged tangentially, and the segmental gear must be located with its pitch-line describing a curve struck from the pivotal axis of the tilting platform. It has been found practically impossible in heavy roughly-constructed devices of this character either to primarily attain or to maintain the above-noted adjustments. By my invention I provide a simple, cheap, and efficient device for operating the dumping-platform or section thereof which does not require any accurate location or adjustment which may be applied at any desired distance from the axial pivot of the platform and which will operate in a most satisfactory manner even when applied with no attempt at accuracy. This device in its preferred form is illustrated in the accompanying drawings, wherein the numeral 14 indicates a heavy post rigidly secured to the scale-platform 2 at one side and near one end thereof and with its lower end depending below the same. Mounted in the lower end of this post

14 and in bearings 15 on the opposite sides of the platform 2 is a transversely - extended counter-shaft 16, which carries a pair of pinions 17, located one below each of the tilting beams 4.

Meshing with each pinion 17 is a rack 18, the upper end of which is pivotally connected at 19 to the overlying end of the corresponding tilting beam 4. These racks 18 are preferably straight, but they might be curved. They are held loosely in mesh with their cooperating pinions by a pivoted keeper made up of a pair of links 20 and a guide-wheel 21, located between and pivoted to the ends of said links. The links 20 are loosely pivoted on the shaft 16 and embrace the cooperating pinion and rack. The wheels 21 are preferably grooved, and the racks are formed on their backs with longitudinally-extended ribs 22, that work in the grooves of said wheels. These keepers, as is evident, hold the racks in mesh with the pinions and permit such angular movements thereof as will be imparted thereto under the oscillatory movements of the tilting beams 4. The wheels 21 guide the racks with but little friction.

On the shaft 16 near the post 14 is a large sprocket 23, and carried by a short shaft 24, mounted in bearings 25 on the upper end of the post 14, is a small sprocket 26, over which and the sprocket 23 runs a sprocket-chain 27. The shaft 24 carries a crank-wheel 28, by means of which it may be readily turned, and it is provided with a notched lock-wheel 29, which is engaged by a lock-dog 30, shown as pivoted to a bearing 31 on the upper end of the post 14. The said notched wheel and lock-dog serve to lock the shaft 24, so as to hold the tilting beams 4 in any position in which they may be set.

The numeral 32 indicates a segmental guard-plate one of which is secured to that end of each tilting beam 4 which is adapted to rise.

As already indicated, the tilting beams 4 constitute the dumping-section or tilting portion of the platform. The wagon the contents of which is to be dumped will stand with its wheels resting on the beams 4 and, the hinged platform-section 6 being raised, the contents of the wagon may be dumped through the platform and into any suitable receptacle therefor by tilting the beams 4 into the position indicated by dotted lines in Fig. 1.

As is evident from the foregoing description, tilting movements of the beams 4 from

the position indicated by full lines into the position indicated by dotted lines in Fig. 1, and vice versa, may be positively imparted to said beams by motion transmitted from the crank-wheel 28 through the sprockets and chain and cooperating pinions and racks. It is also evident that the said pinions and racks adapt themselves to the movements of the beams and cannot possibly bind and require no accuracy in their application. From what has been said it will also be understood that my improved device described is capable of modification within the scope of my invention as herein set forth and claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with a tilting platform or wagon support, of a rack pivoted to and depending from one end of said platform, said rack having a longitudinal rib on its back, a pinion mounted on a relatively fixed support below said platform and meshing with said rack, a sprocket-and-chain drive connected to said pinion and extending above said platform, a lock for securing said drive against movements in either direction, and a keeper for holding said rack in mesh with said pinion, comprising a pair of pivoted laterally-spaced links embracing said rack, and a guide-wheel pivoted to the free end of said links and engaging the rib of said rack, substantially as described.

2. The combination with a tilting platform or wagon support, of a lock operative on one end thereof and provided with a trip connection for releasing the same, said trip connection extending to the other end of said platform and terminating in a foot located above said platform, a rack located in the vicinity of said foot-piece and pivotally connected to and depending from that end of said platform, a pinion mounted on a relatively fixed support below said platform and meshing with said rack, a keeper for holding said rack in mesh with said pinion, and a sprocket-and-chain drive connected to said pinion and extending above said platform, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. BIRD.

Witnesses:

ROBERT C. MABEY,
FRANK D. MERCHANT.