

No. 667,335.

Patented Feb. 5, 1901.

J. L. RECORD.
ADJUSTABLE COAL OR ORE SPOUT.

(Application filed Apr. 28, 1900.)

(No Model.)

3 Sheets—Sheet 3.

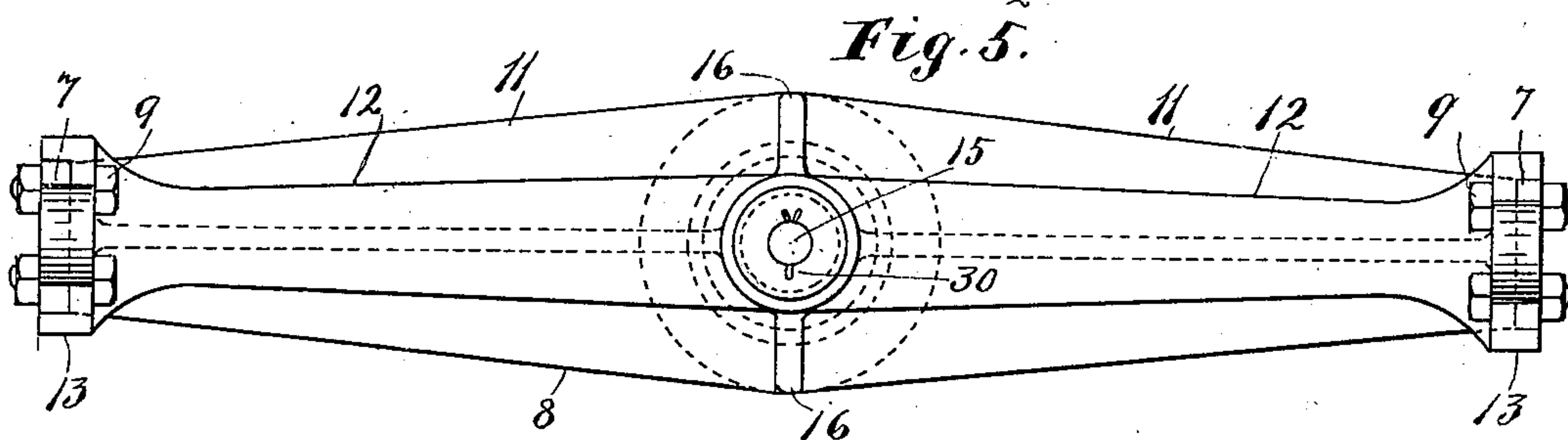
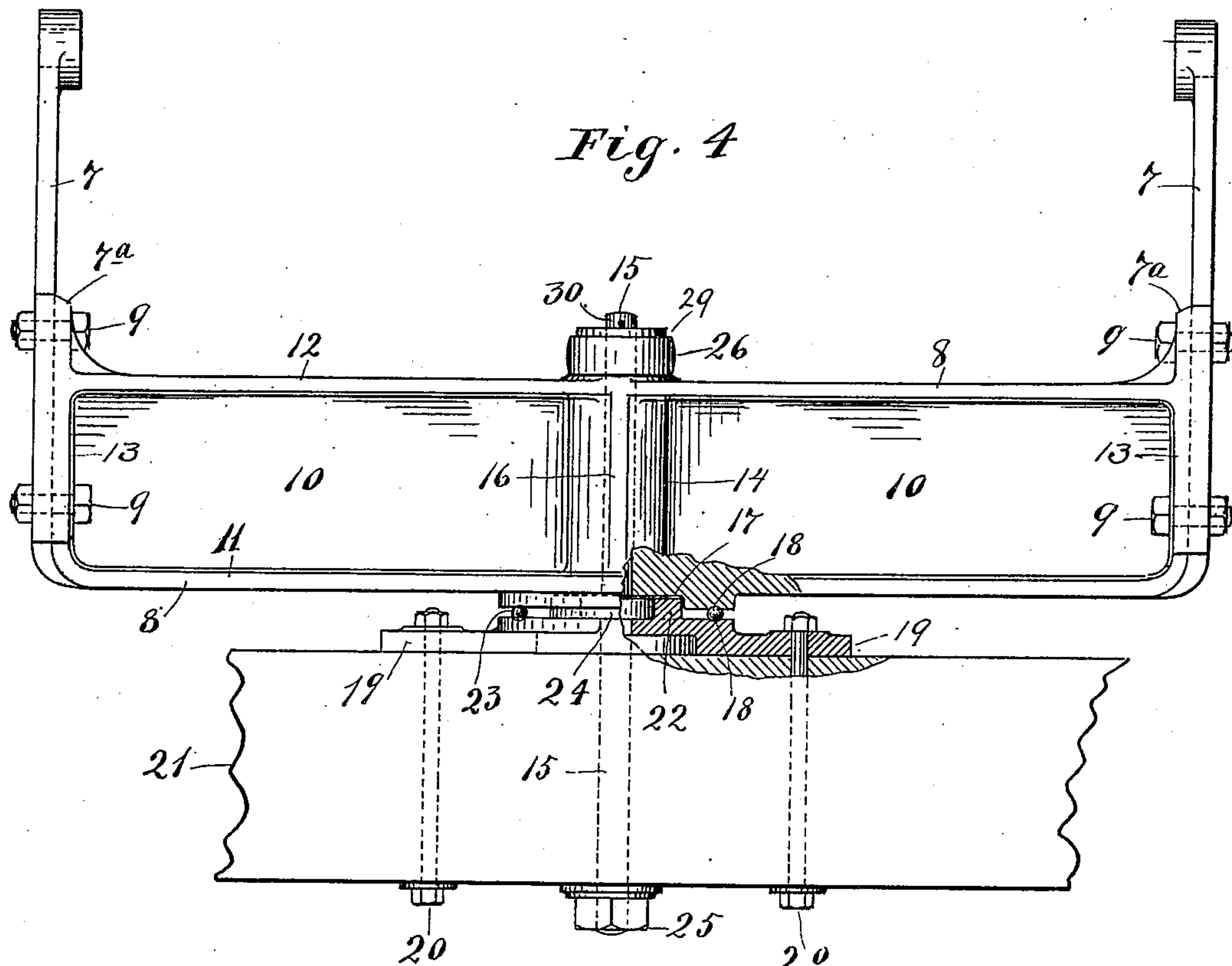
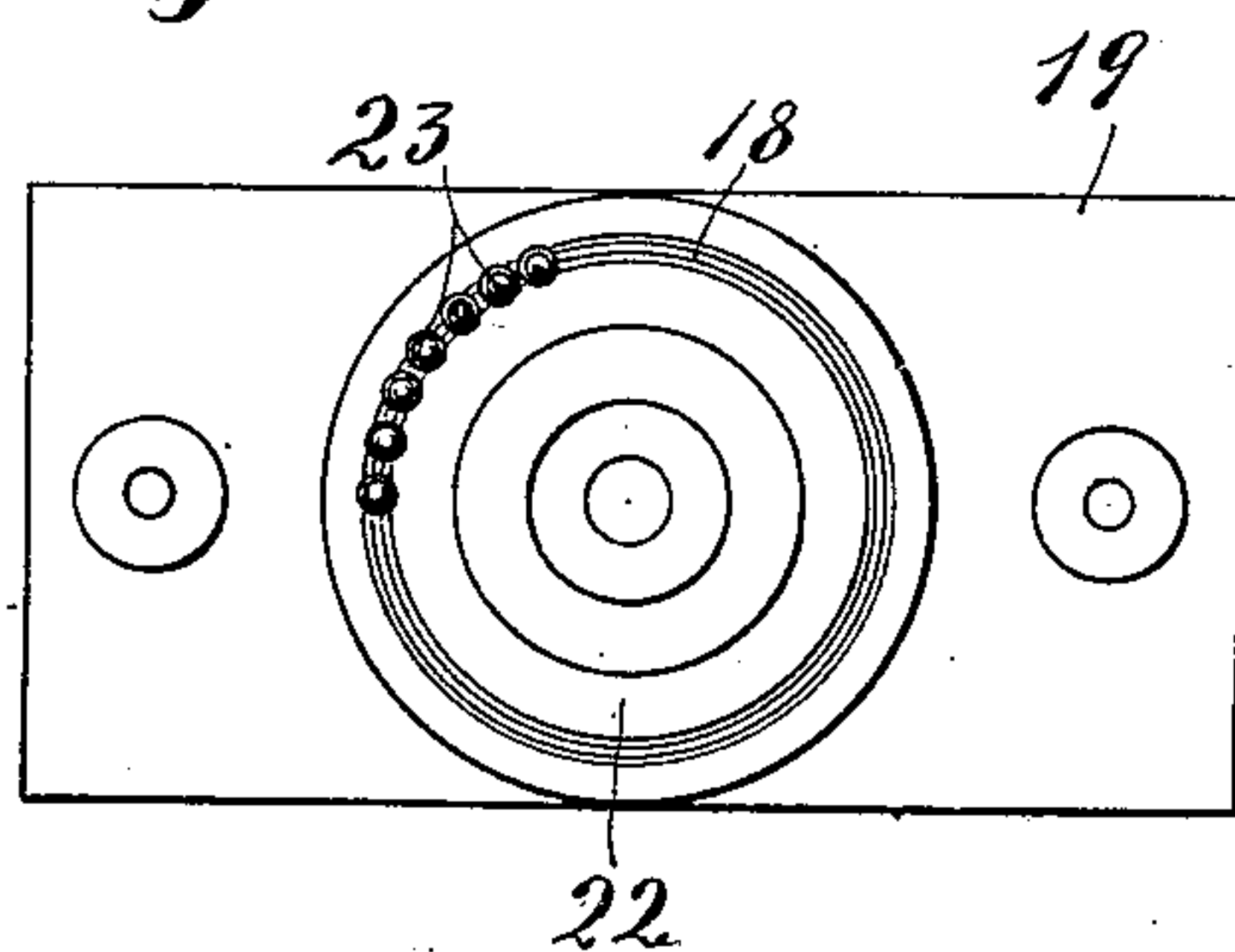


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES L. RECORD, OF MINNEAPOLIS, MINNESOTA.

ADJUSTABLE COAL OR ORE SPOUT.

SPECIFICATION forming part of Letters Patent No. 667,335, dated February 5, 1901.

Application filed April 28, 1900. Serial No. 14,677. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. RECORD, 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 Adjustable Coal or Ore Spouts, of which the following is a specification.

My invention relates to spouts or chutes of the kind employed for conducting coal, ore, and like material by gravity from the bins on docks to vessels; and the object of the invention is to provide a strong and durable spout that is adapted to be easily raised and lowered or turned laterally to desired inclinations.

My improvements relate more especially to the devices for hinging and pivotally supporting such spouts, and they are illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved spout arranged in operative position on a dock. Fig. 2 is a similar view of a portion of the spout and its supports on a larger scale. Fig. 3 is a similar view, partly in vertical section, of the devices for hinging and pivotally supporting the spout. Fig. 4 is a front elevation, with a portion shown in vertical section, of the same devices. Fig. 5 is a plan view of the bolster for supporting the spout, and Fig. 6 is a plan view of the plate providing the antifriction-bearings for the bolster.

In the drawings, 1 designates the framework of an ordinary coal or ore dock, on which is supported a bin 2. The floor 3 of the bin is suitably inclined, and in the discharge-opening is a short permanent chute 4, suitably secured at a like inclination. The spout 5, which is preferably constructed of sheet metal, is arranged with its inner end telescoping loosely a portion of the protruding fixed chute, so that the former may be turned laterally to the required degree without severing its connection with the former to an extent sufficient to interfere with its efficient use.

To support the spout and enable it to be swung laterally as well as vertically, its inner end is connected by pivots 6 to the upper portions of the standards or arms 7 of a rotatable bolster 8. These standards, together with their reinforcing-plates 7^a, are rigidly

secured by bolts 9 to the ends of the bolster-body, or they may, if preferred, be formed as an integral part of the bolster-body. The latter body is of inverted-T shape in cross-section, composed of a web 10, having relatively wide flanges 11 at the base and narrower flanges 12 at the top, and from the ends of the web flanges 13 extend in transverse direction for attaching the arms 7. In its center the bolster is provided with a boss or hub 14 for receiving a spindle or pin 15, on which the bolster may be turned. Ribs 16 connect the boss and flanges to increase the strength of the bolster. The under surface of the bolster has a recess 17, concentric with the spindle, and a groove 18, also concentric with the spindle. Beneath the bolster is a plate 19, secured by bolts 20 on a beam 21, and having on its surface a circular rim 22, fitting in the way formed by the recess 17 in the bolster, and having also a circular groove 18', corresponding with the groove 18 in the under surface of the bolster, the two grooves forming a race or way for the bearing-balls 23, which constitute an antifriction-bearing for the bolster and spout it supports. Within the rim 22 is a circular disk 24, through which the spindle passes, and which, in cooperation with the guiding of the rim 22 by the walls of the recess 17, serves to steady and strengthen the pivotal connection of the bolster.

The lower end of the spindle 15 is threaded and secured beneath the beam 21 by a nut 25, and the upper end is secured in an eye 26 on a rod or brace 27, that is secured by nuts 28 to a part of the frame structure 1, a washer 29 on the eye 26 and a cotter 30 through the spindle being used, in cooperation with the nut on the lower end, to secure the spindle in place. The beam 21 may be connected to the frame 1 by timbers 31 and bolts 32 and also by supports 33, that rest on a lower portion of the frame.

Any usual or convenient means may be employed for raising and lowering the spout to the extent desired. The devices shown consist of a chain 34, attached to the outer end of the spout and arranged to be wound, by means of a crank or other device, on a drum or cone-block 35, suitably secured on the upper portion of the framework.

The construction shown and described pro-

duces a spout that is capable of being easily turned on its vertical pivot in lateral direction, as required, and also easily turned on its horizontal pivots to raise and lower it, 5 and at the same time possesses the required strength and durability.

Having described my invention, what I claim is—

1. In a discharge apparatus for coal and ore bins, the combination with a stationary chute, 10 of a spout having its upper end arranged to receive the discharge from the chute, a bolster arranged beneath the chute for supporting the receiving end of the spout, standards 15 on the bolster to which the spout is pivotally connected to allow its free end to be raised and lowered, a base on which the bolster is mounted, a spindle connecting them and permitting horizontal rotation of the bolster and 20 spout, and means for raising and lowering the outer end of the spout, substantially as set forth.

2. In a discharge apparatus for coal and ore bins, the combination with a stationary chute, 25 of a spout having its upper end arranged to receive the discharge from the chute, a bolster arranged beneath the chute for supporting the receiving end of the spout, standards on the bolster to which the spout is pivotally 30 connected to allow its free end to be raised

and lowered, a base on which the bolster is mounted, a spindle connecting them and permitting horizontal rotation of the bolster and spout, a brace for holding the upper portion of the spindle in place, and means for raising 35 and lowering the outer end of the spout, substantially as set forth.

3. In a discharge apparatus for coal and ore bins, the combination with a stationary chute, 40 of a spout having its upper end arranged to partially surround the mouth of the chute and receive the discharge therefrom, a bolster arranged beneath the chute for supporting the receiving end of the spout, standards on the 45 bolster to which the spout is pivotally connected to allow its free end to be raised and lowered, a base on which the bolster is mounted, a spindle connecting them and permitting horizontal rotation of the bolster and spout, 50 and means for raising and lowering the outer end of the spout whereby it may be elevated to substantially vertical position when not in use, substantially as set forth.

In testimony whereof I have hereunto set my hand this 20th day of April, 1900.

JAMES L. RECORD.

In presence of—

W. R. SINKS,

OTIS W. GETCHELL.