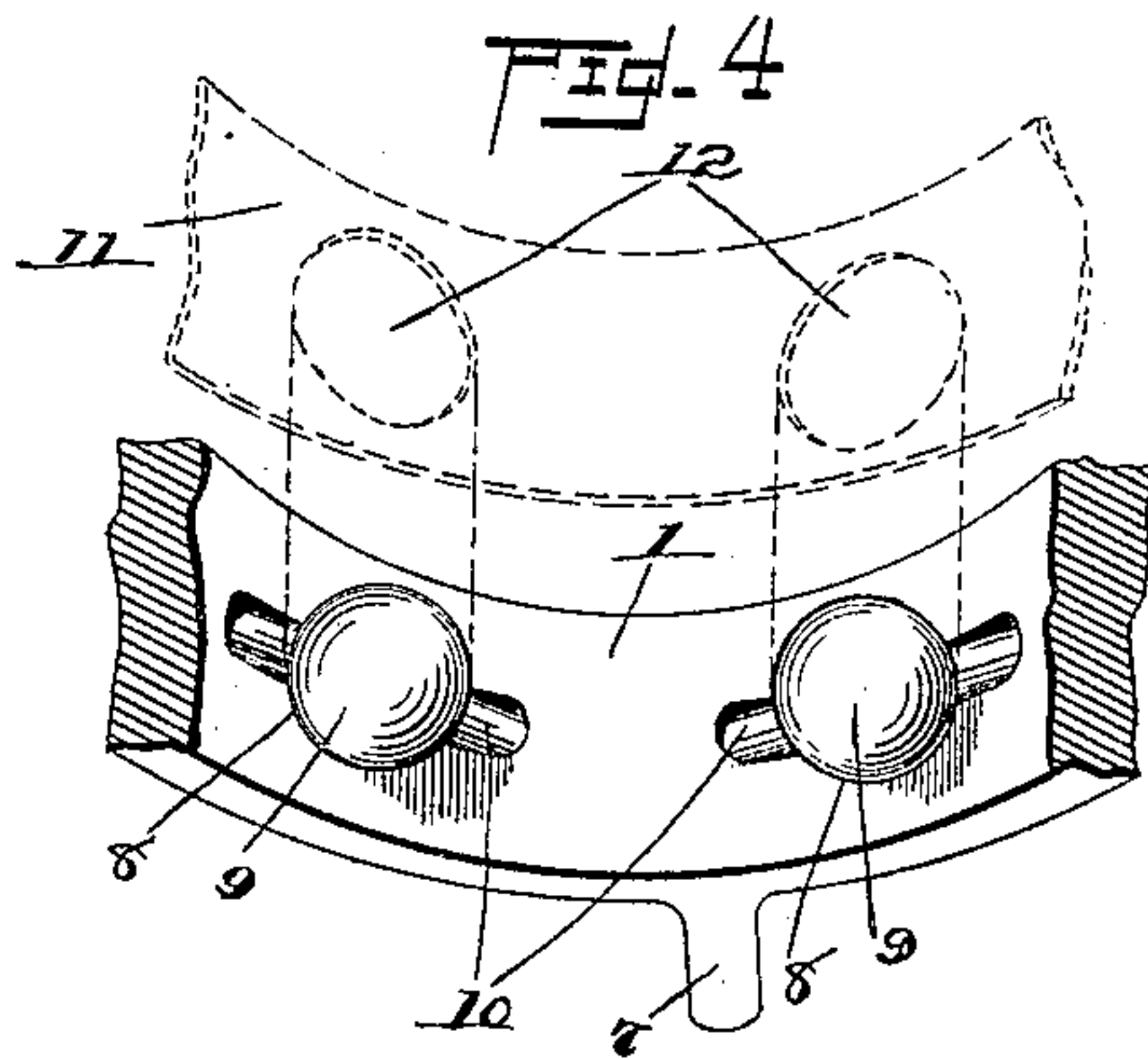
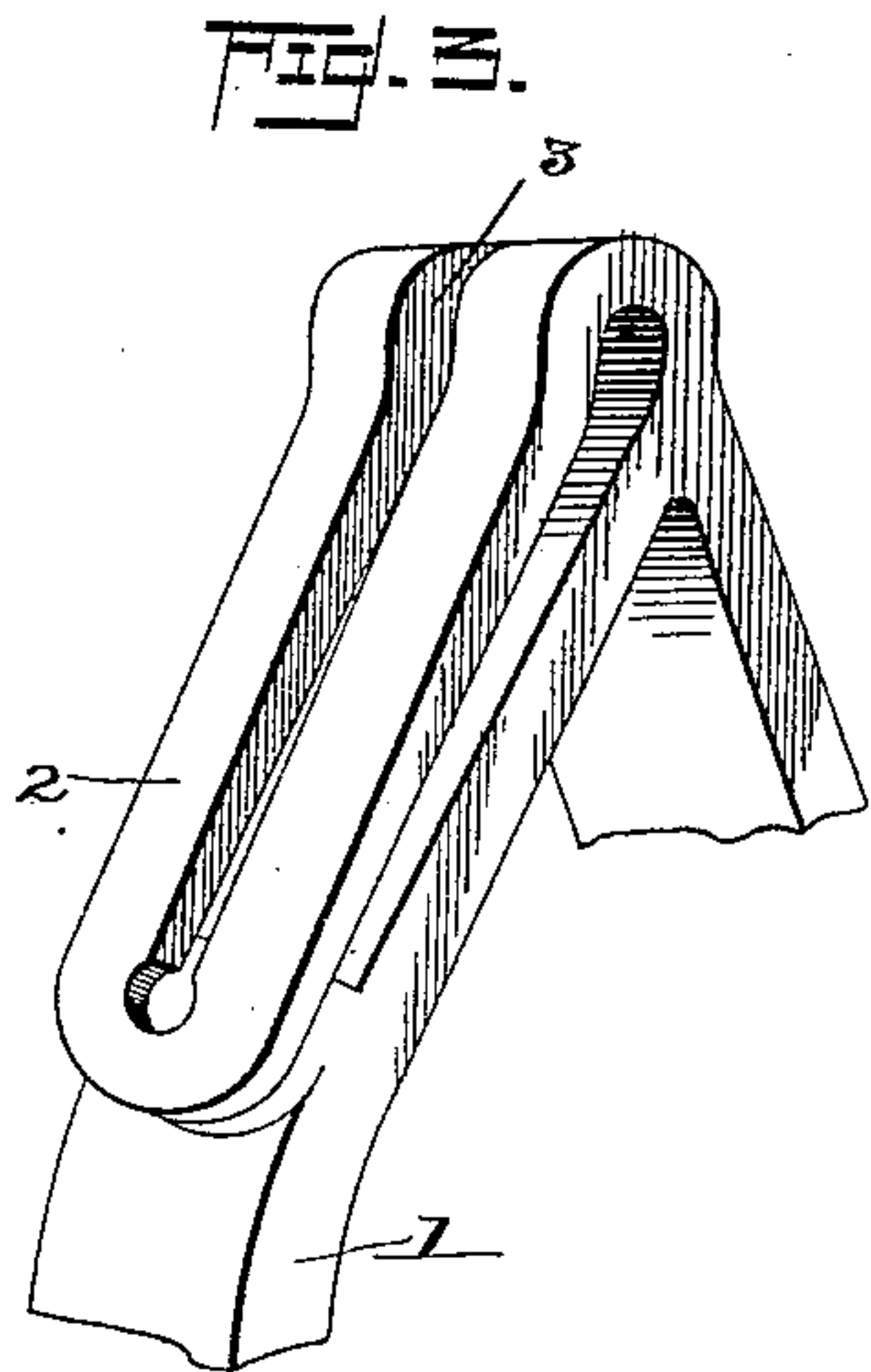
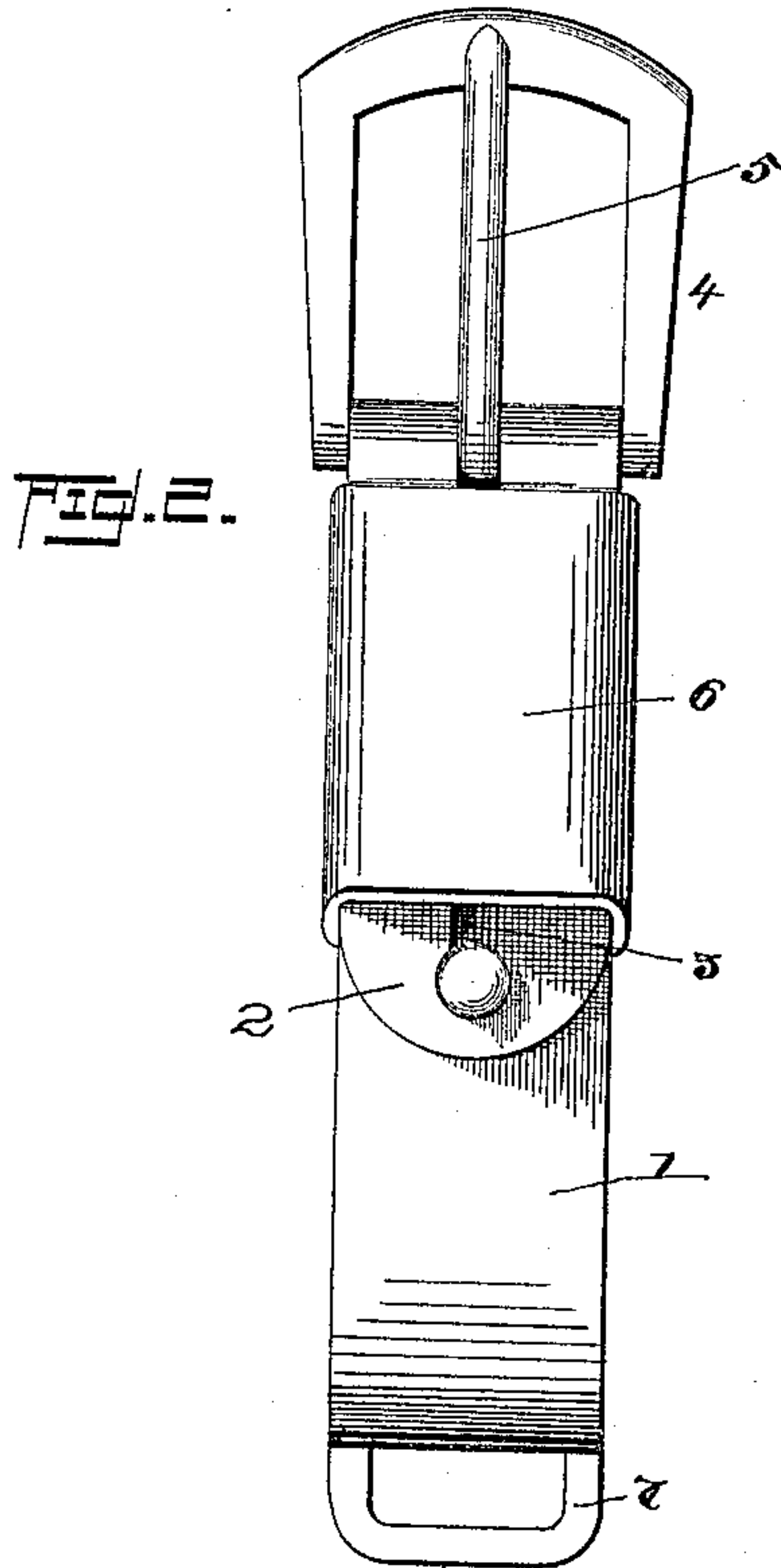
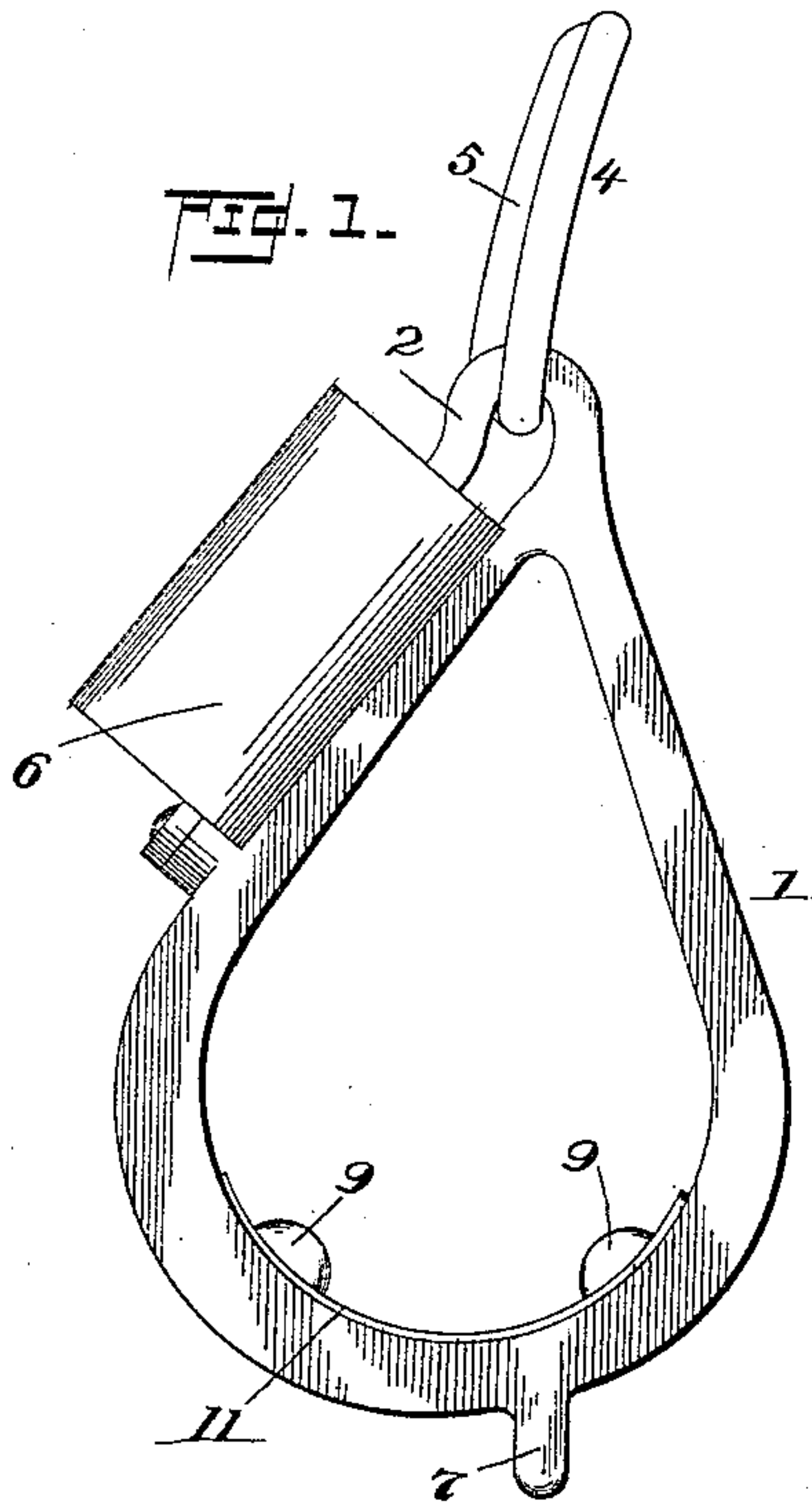


(No Model.)

O. A. CRABBS & S. EMENS.
TUG.

No. 447,050.

Patented Feb. 24, 1891.



Witnesses

E. J. Duwall Jr.
R. J. Marshall

By their Attorneys,

Inventor
Orion A. Crabbs &
Sylvester Emens.

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

ORION ALBERT CRABBS AND SYLVESTER EMENS, OF DAYTON, OHIO.

TUG.

SPECIFICATION forming part of Letters Patent No. 447,050, dated February 24, 1891.

Application filed November 15, 1890. Serial No. 371,495. (No model.)

To all whom it may concern:

Be it known that we, ORION ALBERT CRABBS and SYLVESTER EMENS, citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Thill-Tug, of which the following is a specification.

This invention relates to thill-tugs; and it has for its object to provide a device of this class which shall be simple in construction, and which shall hold the shafts in proper place at all times and permit them to work freely when the horse is moving and prevent pressure upon the back of the horse when backing.

The invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a side view of a thill-tug constructed in accordance with our invention. Fig. 2 is an edge view of the same. Fig. 3 is a perspective detail view of the upper part of the frame of our improved thill-tug. Fig. 4 is a perspective detail view of the lower part of the frame of the thill-tug, the covering-plate having been removed so as to expose the rollers.

Like numerals of reference indicate like parts in all the figures.

The frame of our improved thill-tug, which is designated by 1, is constructed preferably of malleable iron, and is provided at its upper end with a downwardly-extending leaf 2, in which a longitudinal slot 3 is formed. This is for the attachment of the buckle 4, by means of which the tug-loop is to be attached to the usual manner to a harness-saddle, the slot 3 being for the admission of the tongue 5 of the buckle. The buckle-loop 6 is suitably mounted upon the leaf 2 below the buckle, and the said leaf may then be secured to the body of the frame by riveting or in any convenient manner. Upon the under side of the frame is formed a loop or bail 7 for the attachment of the belly-band.

The lower part of the frame 1 is provided with recesses 8, in which are mounted the balls or rollers 9 9, which are provided with laterally-extending spindles 10, for which

suitable bearings are formed adjacent to the recesses 8. A suitably-constructed covering-plate is to be used for the purpose of retaining the balls or rollers in their respective recesses, such covering-plate, which is designated by 11, being provided with openings 12, through which the faces of the balls or rollers may project.

The operation and advantages of our invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed.

The construction of the device is simple and inexpensive, the entire frame being cast of malleable iron in a single piece and requiring merely the addition of the buckle, the billet-loop, and the rollers to complete the device. The said rollers, which are placed so as to rotate at an angle to each other, form bearings for the shafts, which are thus permitted to move freely in the tug-loop, thus preventing undue wear upon the harness and unnecessary strain upon the horse.

Having thus described our invention, we claim and desire to secure by Letters Patent of the United States—

1. In a thill-tug, the combination, with the herein-described frame, cast of malleable iron and provided at its upper end with a downwardly-extending longitudinally-slotted leaf and provided in its lower portion with recesses, of the balls or rollers seated in said recesses and having laterally-extending spindles, substantially as and for the purpose set forth.

2. In a thill-tug, the combination, with a suitable frame provided with recesses or bearings, of the ball-shaped rollers provided with laterally-extending spindles mounted in said bearings, and means for retaining the said rollers in position, substantially as and for the purpose set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

ORION ALBERT CRABBS.
SYLVESTER EMENS.

Witnesses:

J. R. THOMSON,
JAS. R. S. SMITH.