

No. 745,339.

PATENTED DEC. 1, 1903.

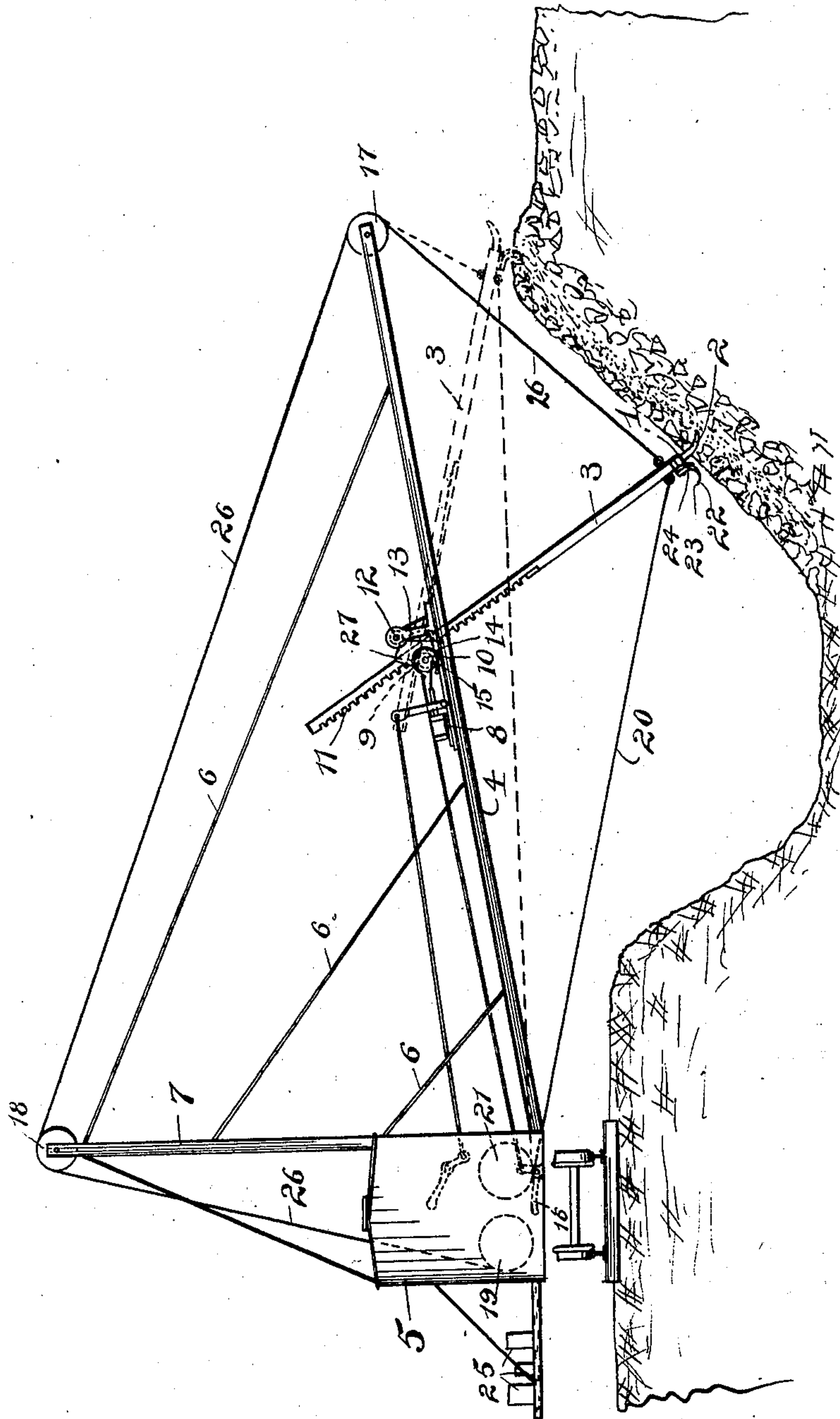
S. B. FLEMING.
THRUST FORK.

APPLICATION FILED JAN. 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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Joseph A. Washick

Inventor,

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By Glenn S. Noble
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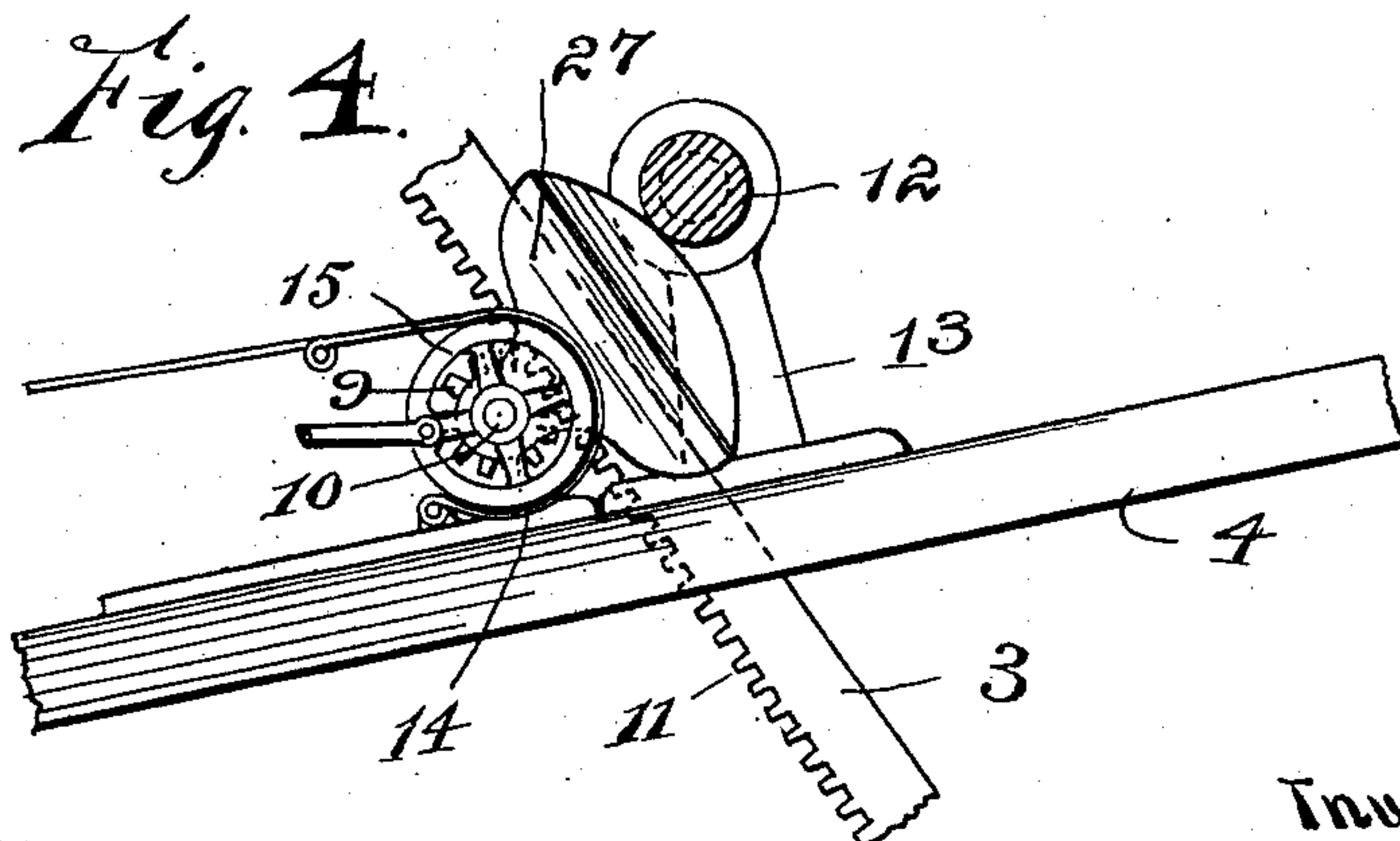
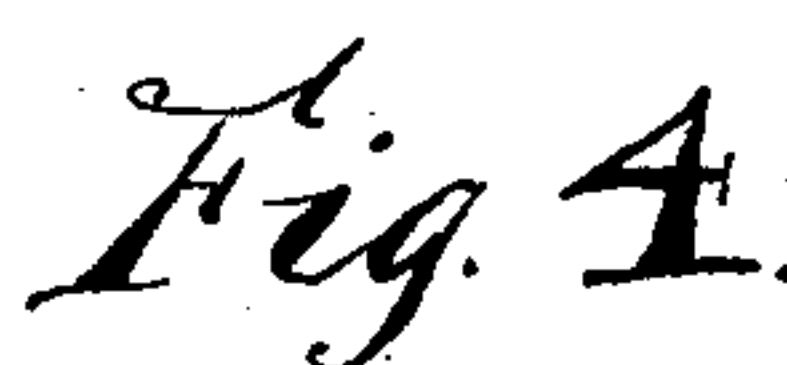
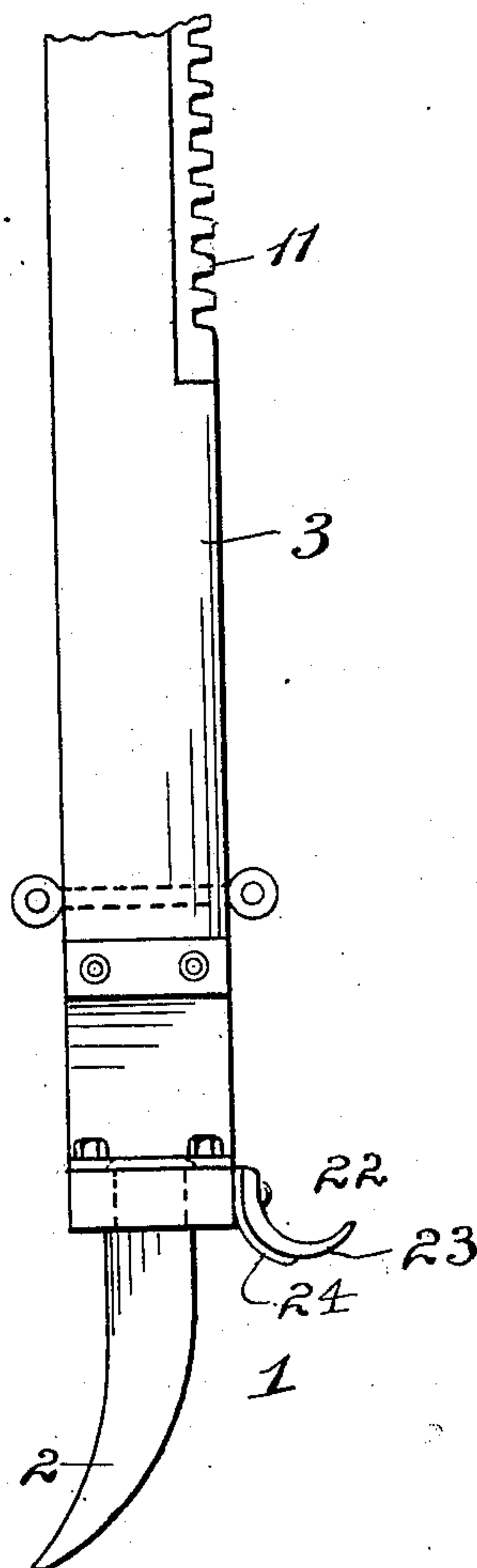
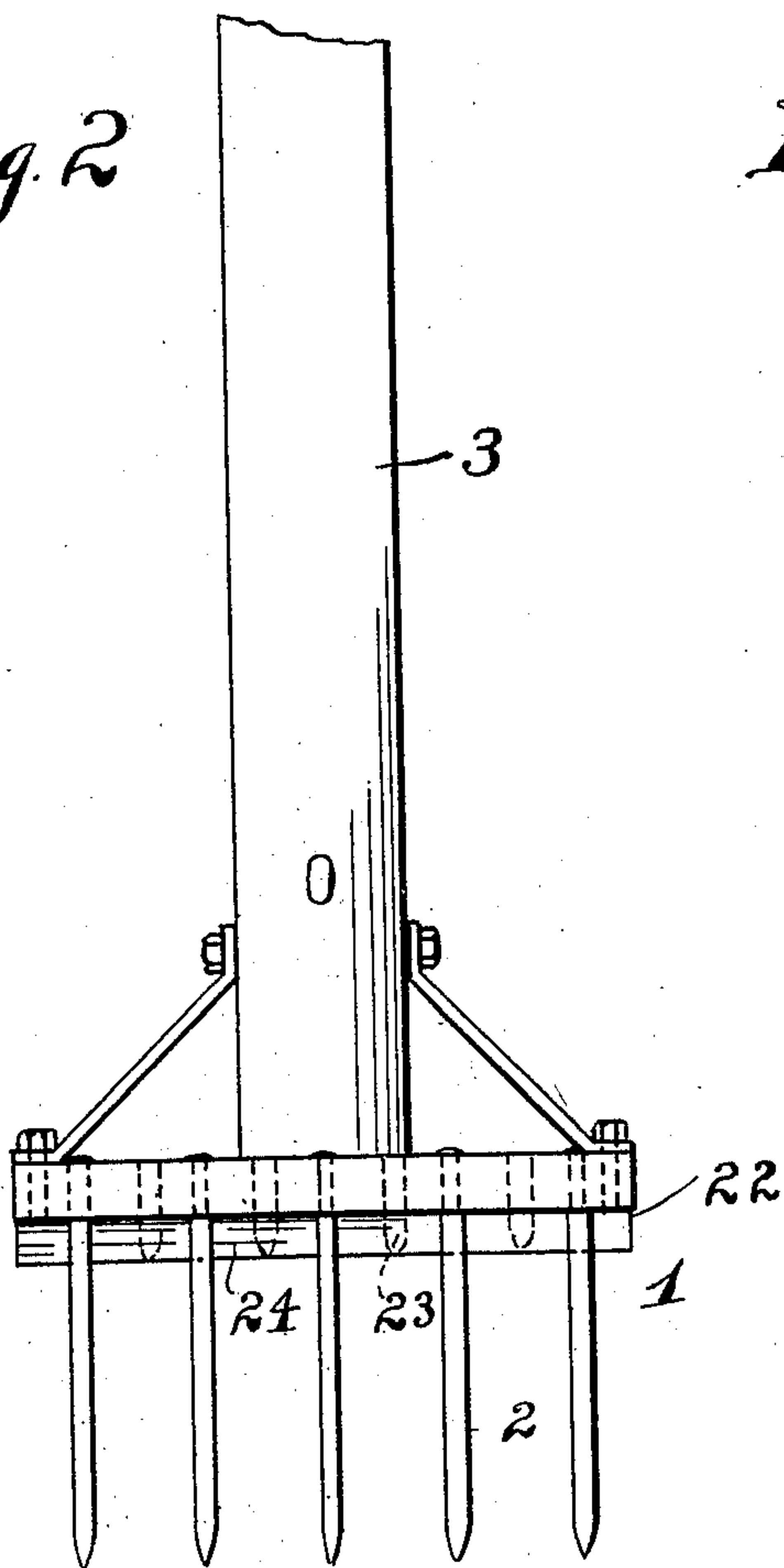
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NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL B. FLEMING, OF CHICAGO, ILLINOIS.

THRUST-FORK.

SPECIFICATION forming part of Letters Patent No. 745,339, dated December 1, 1903.

Application filed January 28, 1903. Serial No. 140,943. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. FLEMING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Thrust-Forks, of which the following is a specification.

This invention relates more particularly to devices used to agitate the fire and partly burnt clay in the open kilns used for burning ballast.

It comprises a fork adapted to be thrust into the material to agitate and break up the same, a rake for smoothing off the crown of the kiln, means for positively thrusting the fork into the material and holding it while penetrating any desired distance, means for drawing the fork up through the material, and means for controlling the combined fork and rake in the backward sweep, so that the top of the pile will be drawn back and smoothed off; and it further comprises various novel features of construction and details, which will be fully described and claimed hereinafter.

In the drawings, Figure 1 is a general view showing the operation of a complete apparatus for raking the fire, consisting of a car carrying a suitable actuating mechanism and a thrust-fork embodying my invention. Fig. 2 is an enlarged detail of the fork. Fig. 3 is another view of the same. Fig. 4 is a detail showing the pinion on the engine and a pivoted keeper or bearing for the fork-beam and also a friction break-wheel with a band-brake.

In agitating the fire and top covering of clay it is desirable to penetrate to a considerable distance into the material and to positively break it up and stir up the smoldering mass and not simply drag over the top surface. To accomplish this, I have provided a fork 1, of any preferred or usual form of construction, having a plurality of strong tines 2 and a long beam-handle 3. This beam extends up through a boom 4, which projects from one side of a car 5. The boom is securely supported by the car, having guys 6 running thereto and also to a mast 7, rigidly fastened in the car.

About midway of the boom 4 is attached an engine 8, of a reversible type, which is provided for raising the fork and thrusting it

into the bank. To accomplish this, a pinion 9 on the engine crank-shaft 10 is adapted to mesh with a rack 11 on the fork-beam 3. In order to keep these in mesh and also allow for the swinging of the beam as the fork is operated, a keeper or bearing 27, through which the beam reciprocates, is pivoted or swung on the shaft 10, so that the beam may swing about this shaft as a center. In order to take a part of the strain off the engine-shaft, the outer face of the keeper 27 may be made in the form of a circle struck from the center of the shaft 10. This face is engaged by a short shaft 12, having its bearings in stands 13 on the boom, so that the strain of a forward pull on the beam will be partly transmitted to these stands. A brake-band 14 around a wheel 15 on the engine-shaft is operated by a foot-lever 16 in the car and is adapted to hold the fork in any desired position when the engine is stopped.

The fork is swung by means of forward and rear cables operated by a hoisting-engine in the car. The forward cable 26 is attached to the lower end of the fork-beam and passes over a sheave 17 at the end of the boom, then up and over a second sheave 18 at the top of the mast 7, then down to the winding-drum 19. The rear cable 20 is attached to the beam in a similar manner and passes directly back to the winding-drum 21.

The upward movement of the fork forms a ridge or crown at the top of the bank which it is desirable to rake back over the face. This is done by a rake 22, fastened to the under side of the fork or integral therewith. The rake is made with curved teeth 23 in the usual manner, but is also provided at the top or next to the fork-beam with a solid portion formed by an additional strip 24, fastened to the teeth. This strip is added so that the rake will positively drag back the material which is loosened by the teeth.

The operation of this device is readily understood from Fig. 1. The fork is drawn back by the cable 20 and lowered by the engine until it is in engagement with the material. It is then swung forward by the cable 26, but at all times the amount of penetration into the material is under the control of the operator and may be positively regulated. It may be found necessary at about the middle

of the sweep to slack off on the beam, which can readily be done by releasing the brake. Then as the fork approaches the top of the bank the engine may be started to keep the fork thrust into the material. As before mentioned, when the fork passes out at the top of the bank it carries up the material and forms a ridge or crown. As the fork is brought back on the return sweep the end is lowered, so that the rake 22 engages this ridge and draws it back over the face of the bank. The fork is then swung back clear of the material and again dropped down ready for a similar operation, which is continued as desired. To prevent the car from being overturned by the side draft, a counterweight 25 is provided at the side opposite the fork.

Various modifications in the details of construction will readily suggest themselves as coming within the scope of this invention, which I do not wish to limit to the exact form described nor to this use alone; but

What I claim, and desire to secure by Letters Patent, is—

1. In combination, a thrust-fork for agitating the material in an open ballast-kiln and a rake secured to said fork.

2. In combination, a fork provided with an elongated handle, a support for said handle, a rake secured to said fork, means for reciprocating said handle, means for swinging the handle forward to cause the fork to agitate the material to be loosened, and means for drawing the handle back to cause the rake to engage the material.

3. In combination, a thrust-fork, a rake secured to said fork, a handle for said fork and rake, a rack on said fork-handle, a pinion engaging said rack, a shaft for said pinion,

means for turning said shaft, a keeper for said handle pivoted on said shaft, suitably-disposed cables for swinging said handle, and actuating mechanism for said cables.

4. In combination, a framework, a boom from said framework, an engine on said boom, a pinion on said engine-shaft, a fork provided with a beam-handle, a rack on said handle engaging with said pinion, a bearing for said handle, a cable leading from said fork, a sheave at the outer end of said boom, and a sheave on said framework to guide said cable, a winding-drum for actuating said cable, a second cable leading from said fork and a winding-drum by which said second cable is actuated.

5. In combination, a thrust-fork, actuating-cables for said fork, a support for the fork-beam, an engine for reciprocating said fork and a brake on said engine.

6. A car, a thrust-fork, suitable supports for said fork from said car, actuating mechanism for said fork and a counterbalance on the opposite side of said car from that on which the fork is supported.

7. In combination, a supporting member, a shaft mounted in bearings on said member, a pinion on said shaft, a beam provided with a rack engaging said pinion, a keeper or bearing for said beam pivoted on said shaft, having a circular face, and a rotatable bearing member mounted on said first-named supporting member, adapted to engage said circular face to transmit a part of any strain on said beam to the supporting member.

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Witnesses:

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