

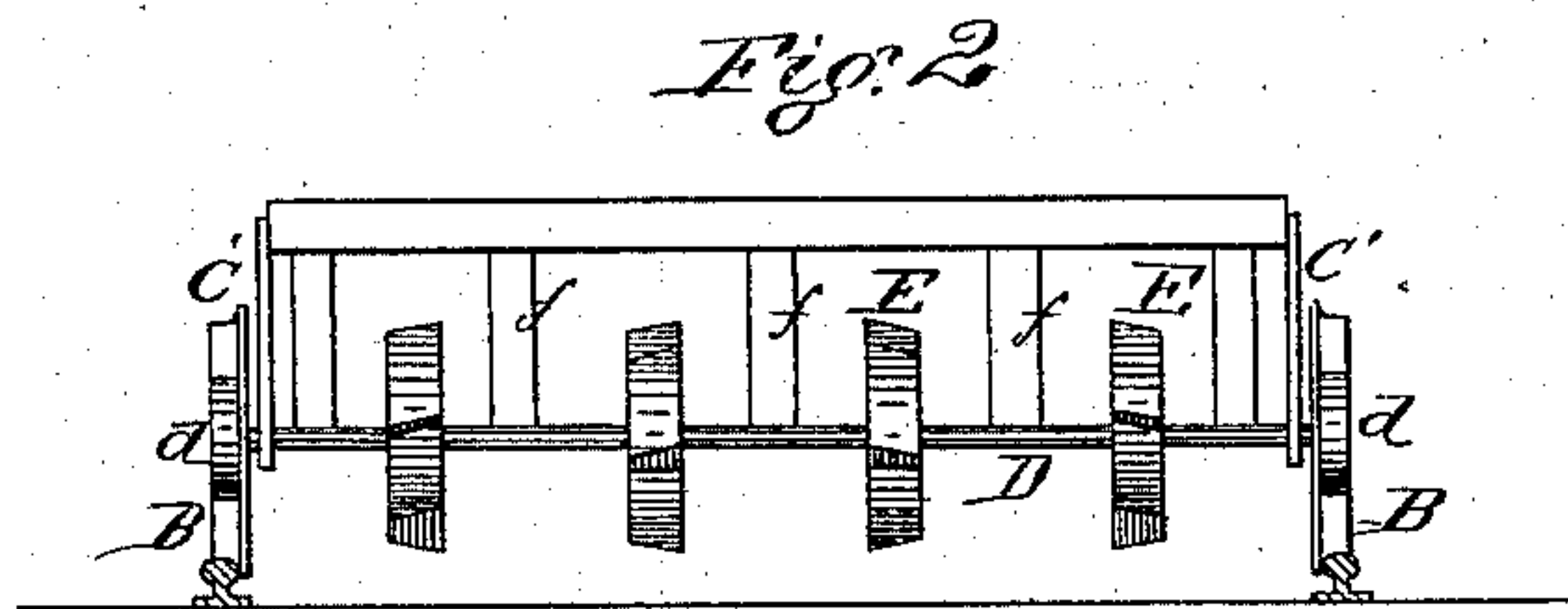
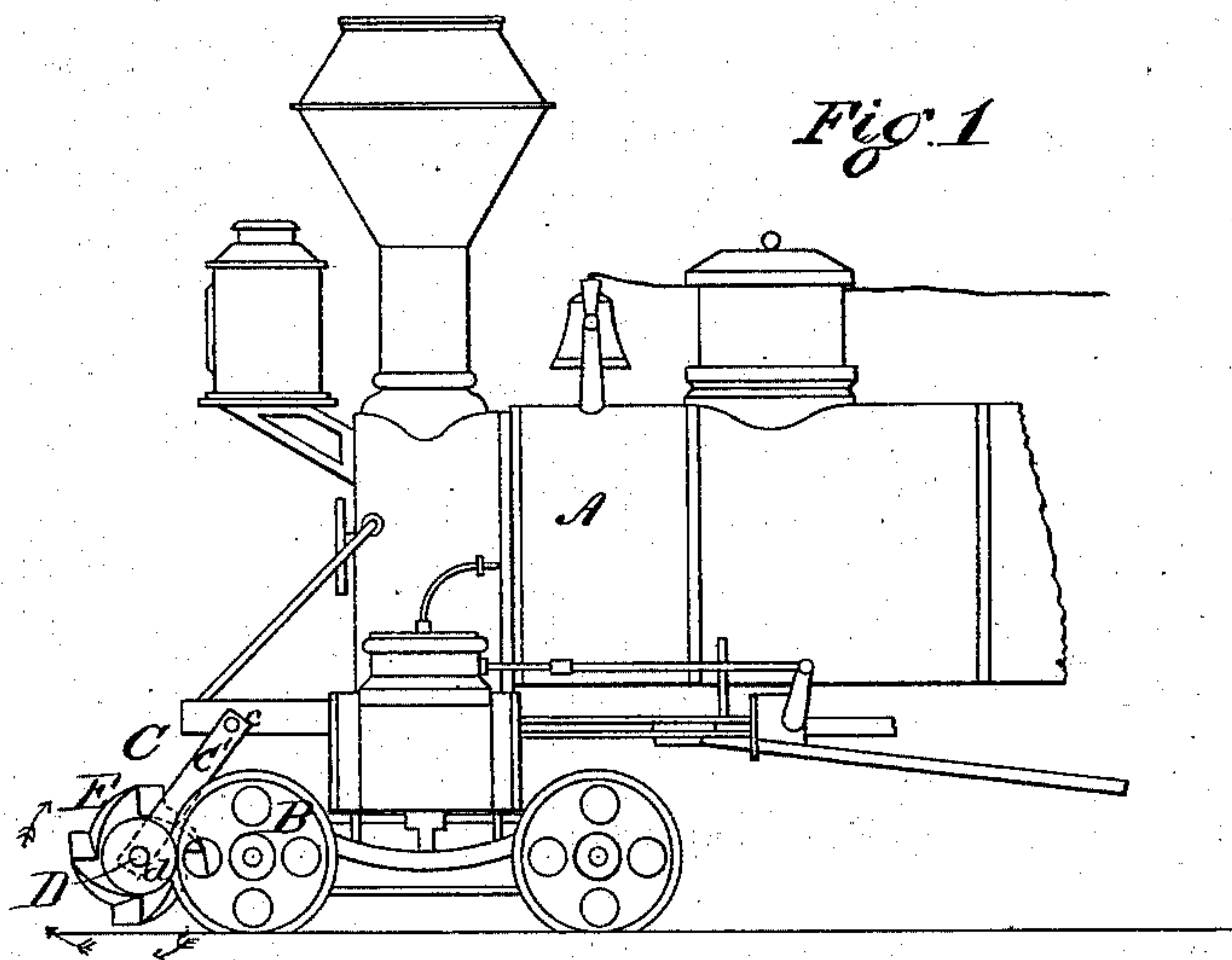
(No Model.)

E. B. LAKE.

COW CATCHER FOR LOCOMOTIVE ENGINES.

No. 284,438.

Patented Sept. 4, 1883.



Witnesses.
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UNITED STATES PATENT OFFICE.

EZRA B. LAKE, OF OCEAN CITY, NEW JERSEY.

COW-CATCHER FOR LOCOMOTIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 284,438, dated September 4, 1883.

Application filed February 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, EZRA B. LAKE, a citizen of the United States, residing at Ocean City, in the county of Cape May and State of New Jersey, have invented certain new and useful Improvements in Cow-Catchers for Locomotives, Engines, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a side elevation of the forward part of a locomotive with my improved cow-catcher. Fig. 2 is a front view of my invention.

My invention has for its object to provide a cow-catcher for locomotives which shall be more effective in operation in clearing the track and avoiding danger to the train and engine than any device for the purpose heretofore produced.

My improvements consist in the peculiar construction and combinations of parts hereinafter fully set forth, the paramount features of which are a shaft provided with spur-teeth which rotate with speed proportionate to the motion of the engine, and a hinged support therefor to permit a swinging vertical movement under conditions hereinafter set forth.

Referring to the accompanying drawings, A represents a locomotive or engine to which my improvements are applied.

B B are the front pair of pilot-wheels, and C is a frame composed of two side bars, C' C', pivoted at c c to the frame or bed of the locomotive and slightly in the rear of a perpendicular let-fall through the axis of the pilot-wheels B B.

In the forward ends of the bars C' C' a shaft, D, has its bearings. On the journals or ends of this shaft are wheels d d, which normally rest against the treads of the pilot-wheels B B, and by friction therewith produce a rotation of the shaft D. The shaft D carries a number of spur-wheels, E E—that is, two or more. These wheels are of such radii that the points of their spurs, when in the lowest position of their revolution, are in a plane with or below the tops of the rails on which the pilot-wheels B B run. Said spurs are also beveled, those on the right of the middle of the engine inclining or sloping to that side, and those on the left

side inclining to the latter side. If more than two spur-wheels, E, are placed on the shaft D, those on each side of the middle are arranged so that their spurs break joints, or alternate, as viewed from the side. Above the shaft D and wheels E there is a gridiron or skeleton frame of bars, f f, which may, if desired, have their lower ends extended down between the said wheels E, and secured to or around the shaft D, in such manner, however, as not to interfere with the rotation of the latter.

The operation is substantially as follows: Normally the wheels d d rest against the pilot-wheels B B, so that when the engine is in motion and advancing the shaft D and wheels E will be rotated in the direction of the arrows. Should a cow or other like obstruction on the track be met the wheels E will toss it upwardly and outwardly, preventing such obstruction from getting under the cow-catcher or beneath the car-wheels, and thereby avoiding the danger of derailing the engine or throwing it or the train off the track. As the frame C is hinged the weight of a cow or other obstruction met by and thrown upon it will press the wheels d d more strongly than before against the wheels B B, and thus tend to assist rather than to hinder the rotation of the shaft D and wheels E E. So, too, owing to the hinging of the frame C, the wheels E may be brought much closer to the track than is permissible with an ordinary rigid cow-catcher. If the wheels E meet an obstacle, such as an unduly elevated tie, which it is desirable to ride over, the frame C will rise, whereas under a like circumstance a rigid cow-catcher meeting such an obstruction would cause the engine to be derailed. It is for this reason that such rigid cow-catchers—namely, those in general use—are placed with their bases a considerable distance above the track, and from this results one of their great defects. Owing to their altitude above the track, when they strike a cow or similar animal the legs of the beast are very apt to get beneath the cow-catcher and upon the rails, resulting in throwing the engine off the latter. My improvements obviate this, as the wheels E have their spurs project so far down that they prevent the legs of an animal from getting beneath the cow-catcher, and, as their direction of revolution, when the engine is advancing, is outward and

upward, they instantly remove, by an upward throw, any movable obstacle which meets or is met by them.

If desired, the shaft D and wheels E may
5 constitute the lower part and front of the cow-catcher, the guard-bars *f f* being above and back of them; or a cow-catcher of the ordinary construction may be employed, and have located beneath it and supported in a hinged
10 frame, C, a shaft, D, with wheels *d* E, the spurs of the latter projecting upwardly between the bars of such cow-catcher.

What I claim as my invention is as follows:

1. A cow-catcher comprising a hinged frame
15 supporting a shaft carrying friction-wheels which bear against the pilot-wheels of the en-

gine, and spur-wheels which rotate when the engine is traveling, substantially as shown and described.

2. The combination, with a locomotive or en- 20 gine, of a frame or support, C, and shaft D, carrying-wheels E, having spurs which are inclined or beveled to the right and left, respectively, substantially as shown and set forth.

In testimony that I claim the foregoing I have 25 hereunto set my hand this 26th day of January, 1883.

EZRA B. LAKE.

Witnesses:

ANDREW ZANE, Jr.,
WILL H. POWELL.