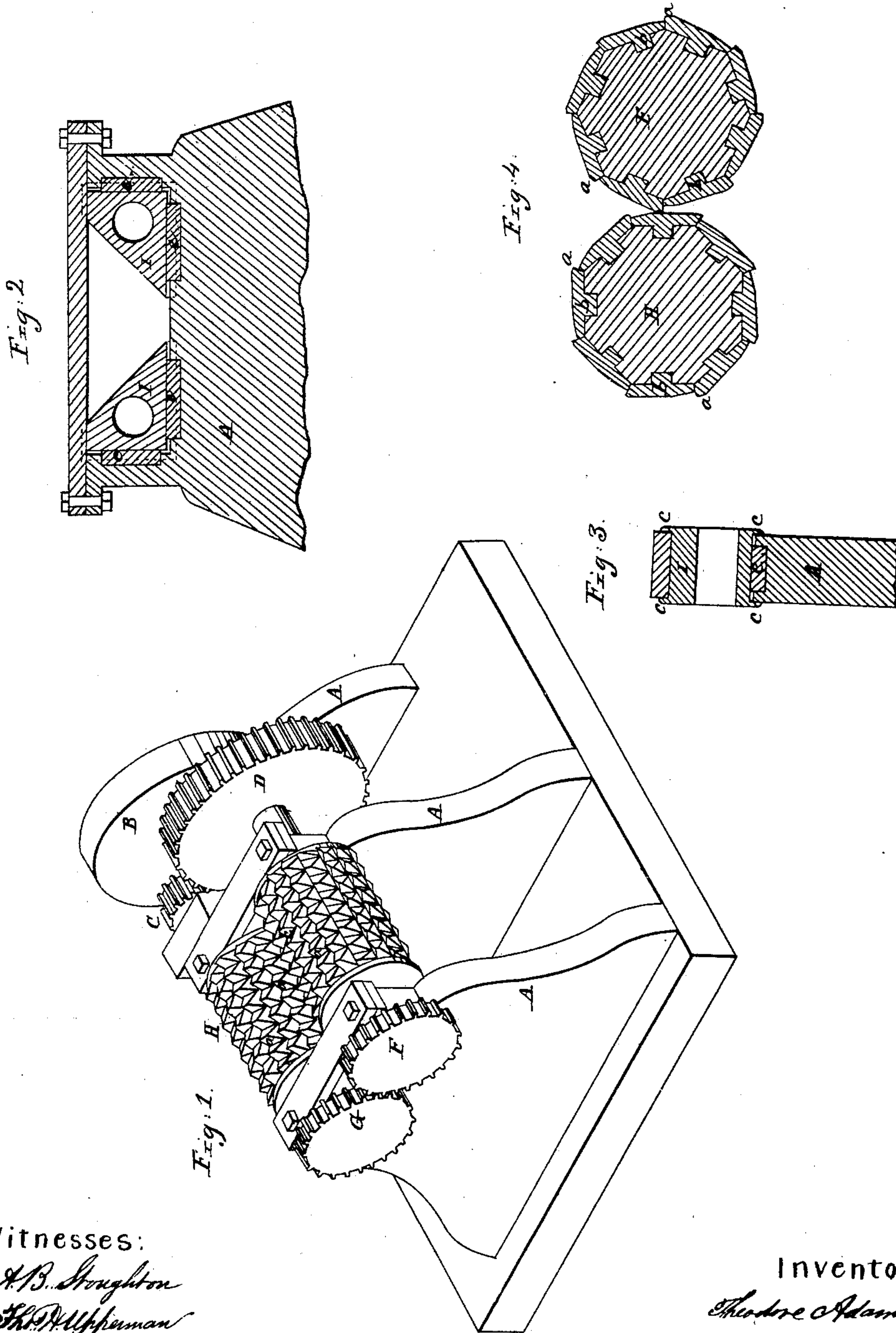


T. ADAMS.
MACHINE FOR BREAKING STONE FOR TURNPIKE ROADS.
No. 24,783. Patented July 12, 1859.



Witnesses:
A. B. Stoughton
E. H. Upman

Inventor:
Theodore Adams

UNITED STATES PATENT OFFICE.

THEODORE ADAMS, OF HARRISBURG, PENNSYLVANIA.

MACHINE FOR BREAKING STONES FOR TURNPIKE-ROADS, &c.

Specification of Letters Patent No. 24,783, dated July 12, 1859.

To all whom it may concern:

Be it known that I, THEODORE ADAMS, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain
5 new and useful Improvements in Machines for Breaking Stone for Macadamizing Roads or Streets or for Ballasting Rail-roads, &c.; and I do hereby declare the fol-
10 lowing to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of
15 the machine omitting the hopper so as to afford a better view of the breaking rolls. Fig. 2 represents a longitudinal section through the journal boxes. Fig. 3 represents a transverse section through said journal
20 boxes. Fig. 4 represents a cross section through the breaking rolls.

The breaking of stone-coal, as well as the breaking of stone generally for streets and roads, has long been known, and practiced
25 mechanically. The only thing to be avoided being the too finely breaking of the stone, and making the machine itself capable of resisting the immense strain that occasionally comes upon them by the broken stone be-
30 coming jammed between the breaking rolls. To make a machine strong enough to resist the strain upon it, might be done, but it would necessarily be heavy and expensive. This I do not propose to do. But I propose
35 to make the breaking rollers self yielding, or elastic to a degree, when a strain comes upon them that they cannot well resist, and thus give way to an evil that they cannot avoid. The very nature of the machine
40 itself, that is, its construction, as well as the nature of its product, requires many conditions in the means of effecting this yielding or elastic property of the rollers, and this though apparently a simple mechanical de-
45 vice, requires a very peculiar arrangement. Metal springs do not answer a good purpose, because they must be strained up tight to resist the spreading of the rollers under ordi-
50 nary circumstances, and when so strained up, every strain of the rolls falls upon them like the blow of a hammer and causes them to break. Besides the grit and dust cuts out the metal springs. Vulcanized rubber, or a heavy felt cloth, is not subject to the same
55 evil results that metal is, but these materials spread so much under the heavy strain they

must endure, as to soon "spew out" from under the boxes, and thus provision must be made for this difficulty.

The nature and object of my invention 60 consists in so arranging the rollers of stone breaking machines upon the frame, as that when an undue strain comes upon them, they will be self-yielding to a limited extent, and sufficient to relieve the machine from break- 65 age, which would otherwise occur.

To enable others skilled in the art to make and use my invention I will proceed to de- scribe the same with reference to the draw- 70 ings.

A, represents a stout substantial frame of cast iron, of suitable shape and form to re- ceive and hold the machinery.

B represents a pulley by which motion is communicated to the machinery from the 75 prime motor. The shaft of this pulley B, has upon it a pinion C, which drives a large cogged gear D on the journal of one of the breaking cylinders E. This cylinder E, has upon its opposite end a gear F, that takes 80 into and turns a similar sized gear G, on the journal of the other cylinder or roller H, so that the two rollers E, H shall turn toward each other, and thus carry in the material to be crushed between them. 85

The rollers E, H, are furnished with teeth or projections *a, a*, that will catch and crack or break the stone into cubes, or as nearly so, as stone can be broken into that form, the broken stone falling below, and as I propose 90 onto a carrying belt or platform that will remove them out of the way, or carry and drop them into the car, cart, or wagon that is to haul them away. The precise form of teeth used, is quite immaterial, as many 95 forms have been successfully used, the only condition being that, they are strong, and grasp the stone firmly to crack into shape, and then release it when properly cracked. These teeth are formed on lags or sections *b*, 100 which may be slid into grooves formed in the rollers, as seen in Fig. 4, and their ends banded to hold them firmly in place. By this plan should the teeth of any particular section give way, such section may be re- 105 moved, and replaced by another.

The journal boxes I, I, in which the rollers E, H, revolve, are of a triangular form, for convenience, and have flanges *c, c*, on their sides, which admits of their setting on the 110 main frame like a saddle. Behind and underneath these boxes I, is placed vulcanized

rubber *e*, or its equivalent, the flanges on the boxes, and the main frame, forming the sides and ends as it were of a tight box in which the rubber lies, and which prevent it on all sides from being squeezed out of its seat. The boxes though entirely loose on the frame cannot move in the line of the length of the cylinders, but are free to move with the rollers from each other, so that whenever a stone becomes jammed in between the rolls, that it cannot crack, and which would otherwise inevitably break the machine, the rolls give way, spreading slightly, and relieving said rolls. This to be sure allows stone of variable sizes to occasionally pass through but as they pass through a graduated screen afterward they are assorted into sizes, as well as divested of all the dirt, and small stuff.

Having thus fully described the nature 20
and object of my invention I would state that I am aware that, elastic rollers have been used in many machines, and I make no claim to them except as applied under the circumstances herein described, but 25

What I do claim as new and desire to secure by Letters Patent is—

Hanging the breaking rolls of stone breaking machines in boxes supported on rubber springs or their equivalent, so that said rollers will yield to any and all undue strains upon them, and thus prevent the breaking of the machine, substantially as herein represented. 30

THEODORE ADAMS.

Witnesses:

A. B. STOUGHTON,
THOS. H. UPPERMAN.