

(No Model.)

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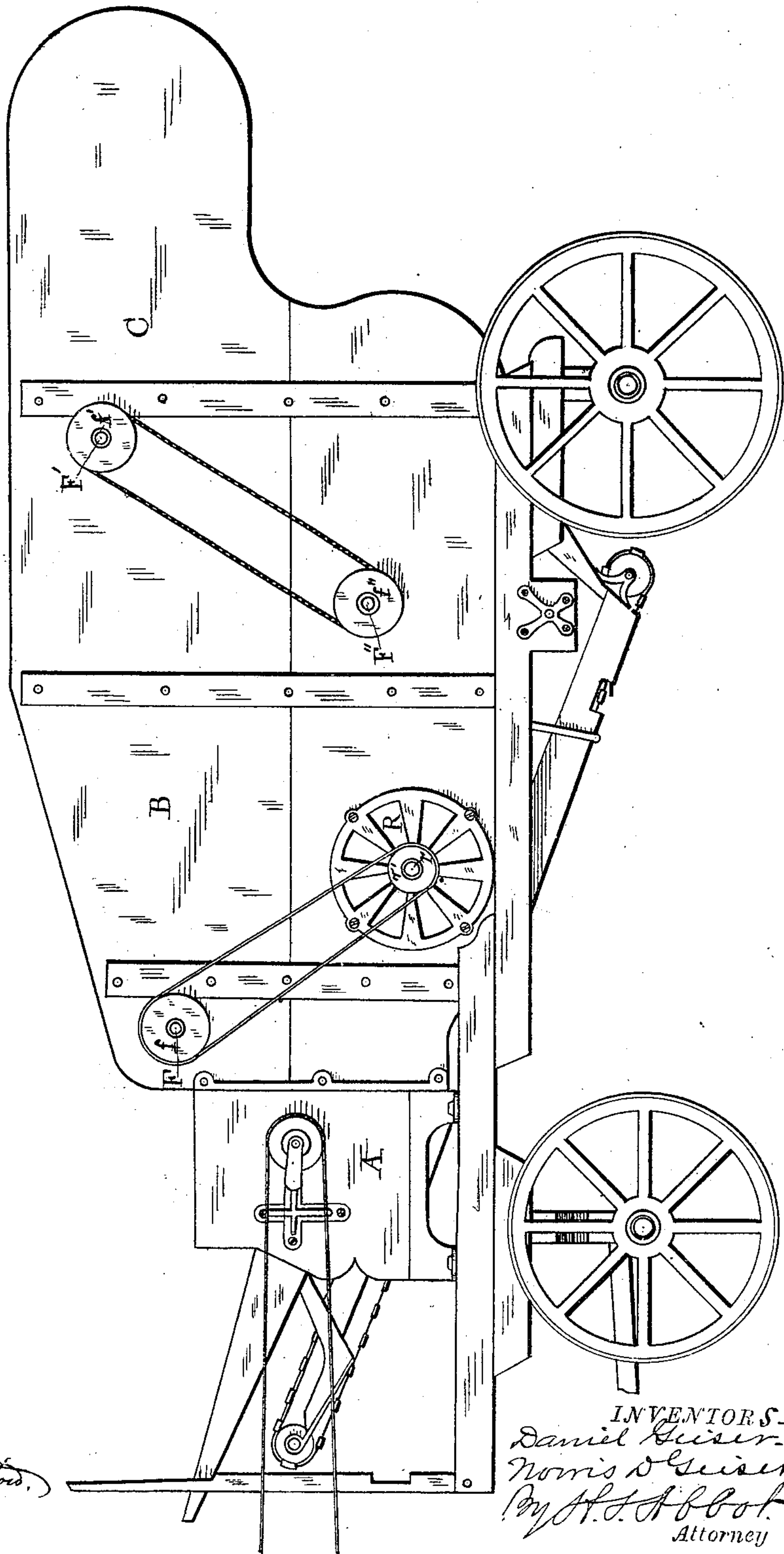
D. & N. D. GEISER

MACHINE FOR THRASHING AND CLEANING GRAIN.

No. 266,688.

Patented Oct. 31, 1882.

Fig. 1.



WITNESSES

J. H. Knight
Geo. R. Byington

INVENTORS.

Daniel Geiser
Norris D. Geiser
By H. J. Abbott
Attorney

(No Model.)

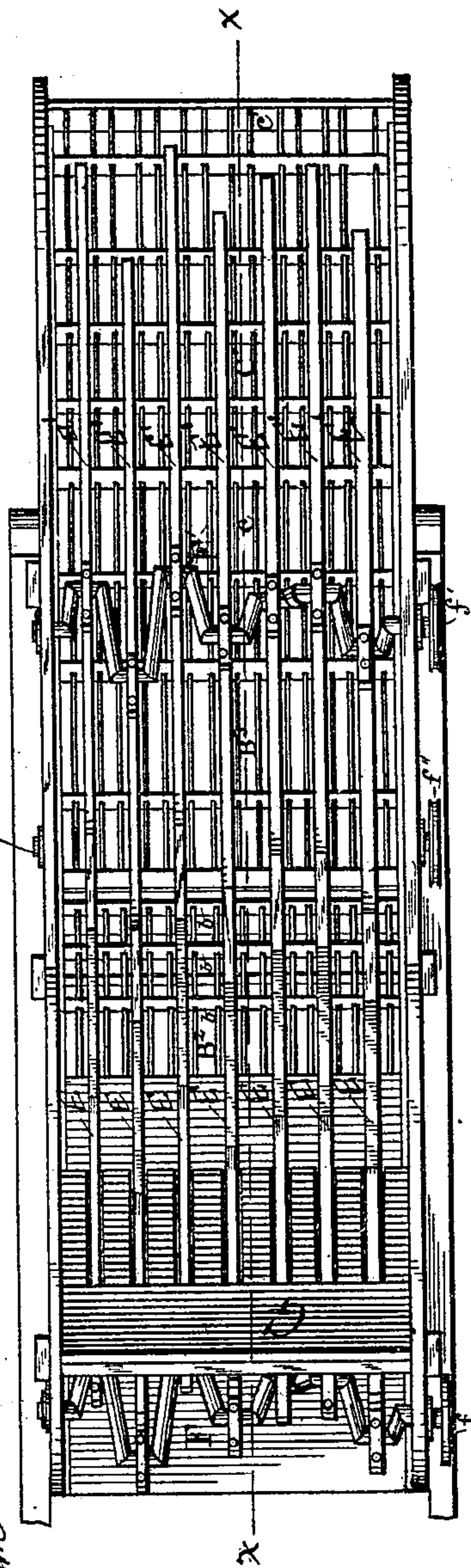
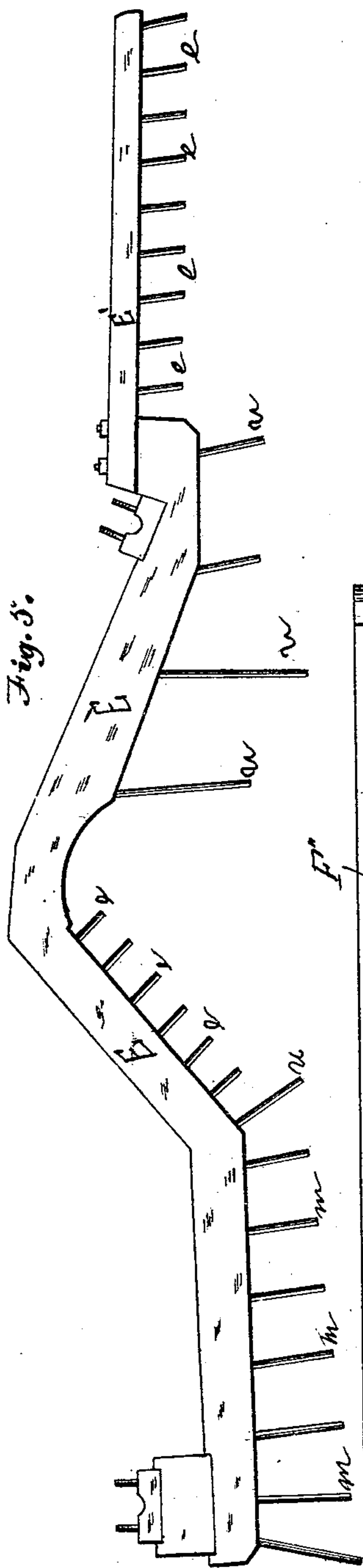
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WITNESSES
F. H. Knight
Geo. R. Kingston.

INVENTORS.
Daniel Geiser.
Norris D. Geiser.
By H. J. Abbott, Attorney

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3 Sheets—Sheet 3.

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Fig. 3.

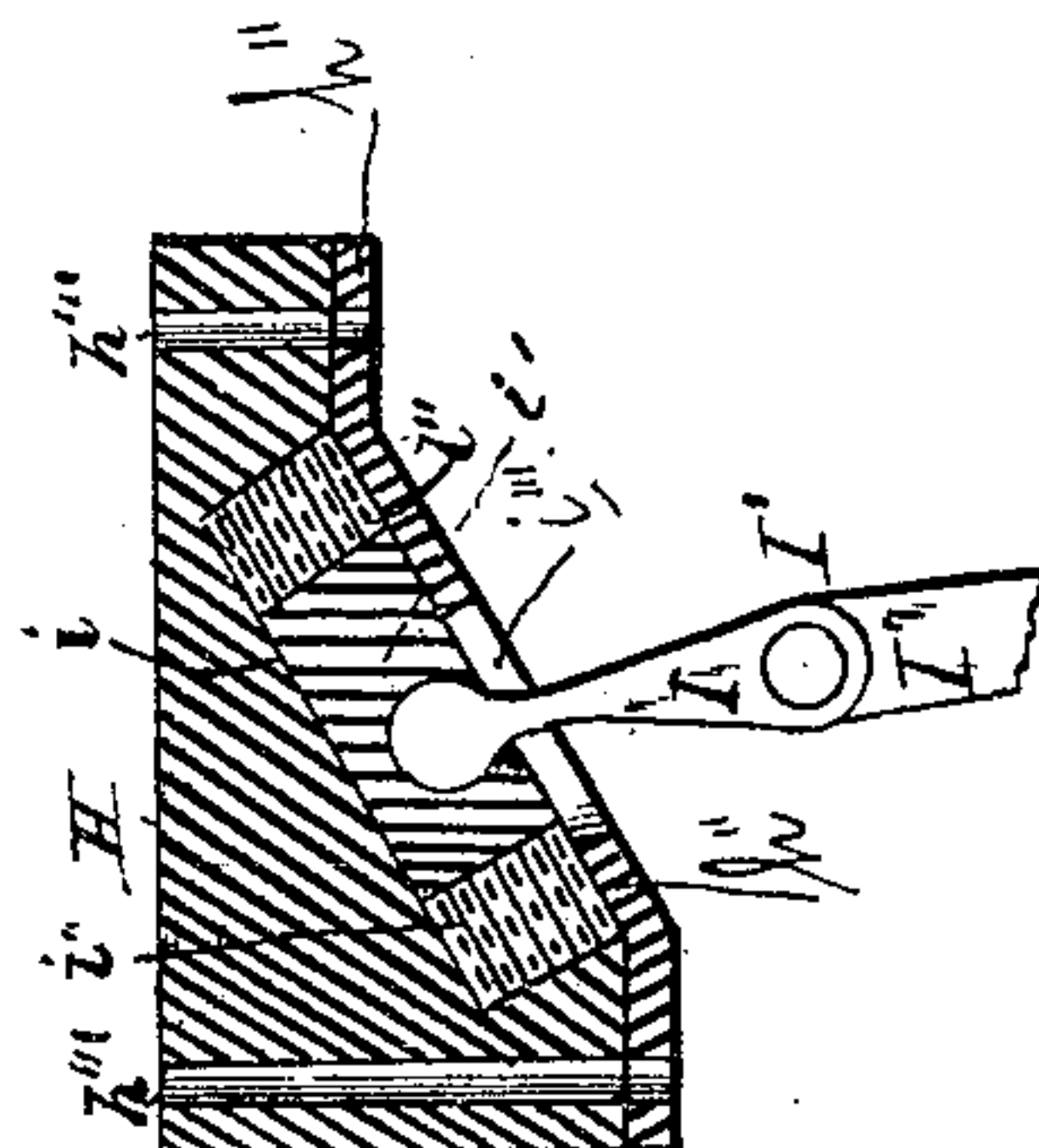
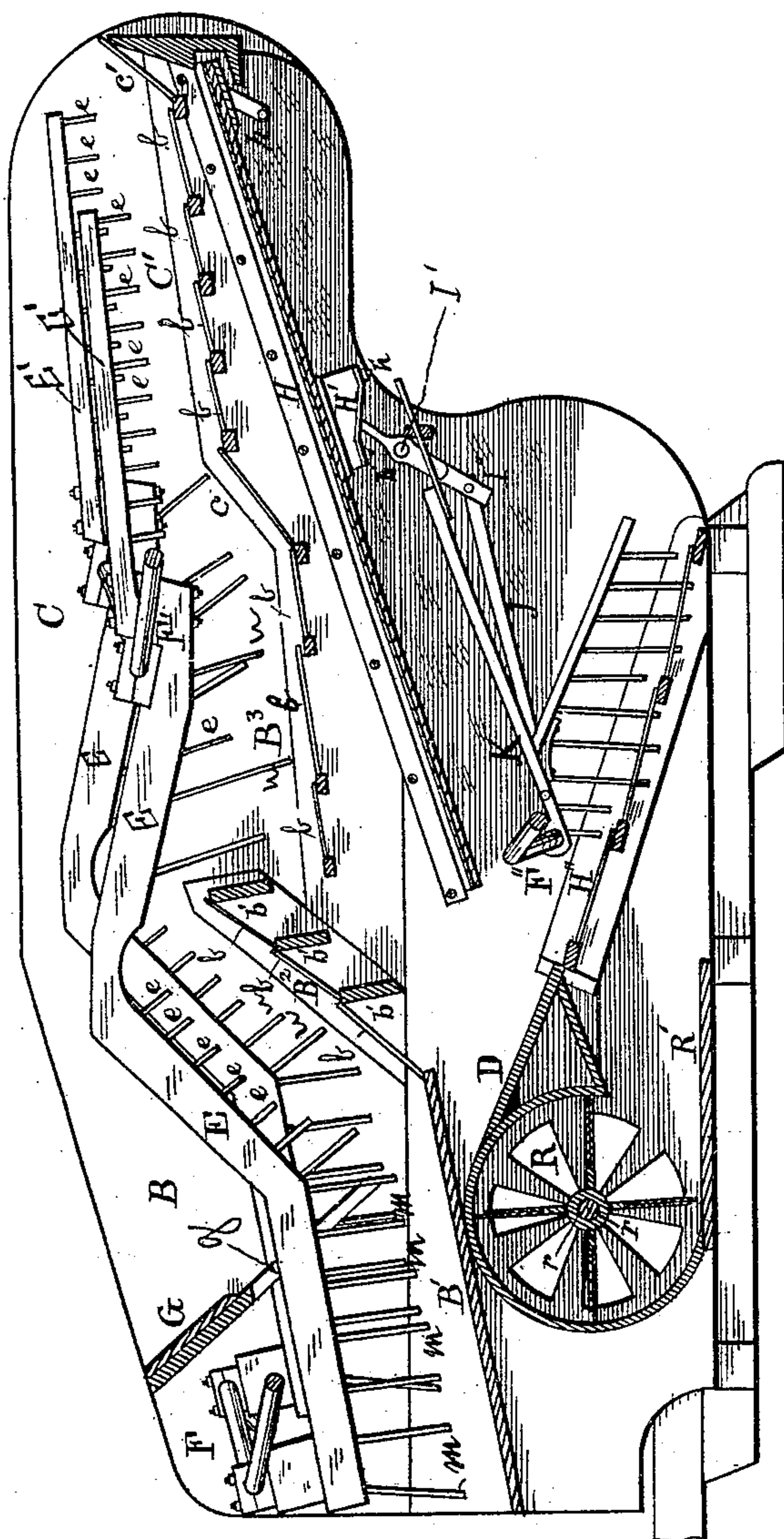


Fig. 4.

WITNESSES
F. H. Knight
Geo. R. Byington.

INVENTORS
Daniel Geiser.
Norris D. Geiser.
By H. J. Abbot, Attorney

UNITED STATES PATENT OFFICE.

DANIEL GEISER AND NORRIS D. GEISER, OF WAYNESBOROUGH, PA.

MACHINE FOR THRASHING AND CLEANING GRAIN.

SPECIFICATION forming part of Letters Patent No. 266,688, dated October 31, 1882.

Application filed June 10, 1882. (No model.)

To all whom it may concern:

Be it known that we, DANIEL GEISER and NORRIS D. GEISER, citizens of the United States of America, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Thrashing and Cleaning Grain; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a side elevation of the machine; Fig. 2, a plan view of the same with the thrashing-cylinder omitted; Fig. 3, a longitudinal vertical section on the line $x x$ of Fig. 2, and Fig. 4 an enlarged vertical section of the spring-cushioned bolster seen in Fig. 3 at H' . Fig. 5 is a side view of one of the rakes.

This invention relates to devices which form part of a thrashing-machine and effect a portion of the separation of the grain from chaff, dust, and other substances; and it consists in several novel devices and combinations and arrangements of mechanism, as will be hereinafter more fully described, and set forth in the claims.

In the accompanying drawings, A represents the section which contains the thrashing mechanism for preparing the material to enter upon the grates, which are arranged in sections B C. These parts are arranged as in ordinary improved thrashing-machines, and are so well known as to require no description, as they form no part of our invention.

In Fig. 3 are shown the various parts of our improved grain-separator. From this figure the section A of Fig. 1 is absent, the sections B and C only being shown.

B' is the apron, and B^2 the first grate, extending at considerable of an angle above the inner end of apron B' . This elevation of the first grate gives the grain more grate-surface through which to be separated, and makes a long offset to the lower grate, B^3 . The bars $b' b'$, upon which the grate B^2 rests, are made wide and extend down a suitable distance to form a continuous head to receive the grain

thrown forward by the cylinder and deflect it downward to the fan-shoe D and grate H'' .

Above the grates are the rakes E E E, &c., of which there may be as many as may be necessary. Seven are shown in the plan, Fig. 2. These rakes are operated by two crank-shafts, F and F', the crank-pins on each shaft being arranged so that they correspond in movement each with the other, and the cranks are placed around the center of rotation to give the rakes different times of reciprocation, so that when one is moving the straw forward those on each side of it are elevated and moving backward. In addition to the teeth e , which are of uniform length, and which, during their forward movement, pass just above the cross-bars of the grates, so as to clear the bars and feed the straw, each rake is provided with several teeth, n , made long enough to pass some distance below the wires of the grates between the bars, especially over the first grate, B^2 , where the straw first rises above the apron B' , and also over the grate B^3 . These long teeth during their backward movement break up and scatter the bunches that frequently form and carry forward the grain. Over the apron B' each rake is provided with a series of teeth, m , of sufficient length to just clear the apron upon the forward movement of the rake.

At C the grate B^3 has a short ramp, c , to grate C', and at the end of grate C' there is another ramp, c' , beyond which the straw is forced out of the machine and conveyed away. One of the special features of our invention is the rake-bars E, supported and operated by two coincidently-moving crank-shafts provided with extension-bars E', attached to the ends of the rake-bars E. The object of this construction is to have a uniform standard of rake-bars and crank-shafts for all sizes of machines, and to adapt the rake to the various sizes of machines by a series of sizes of extension-bars E'. This will avoid the necessity for changing the crank-points, and consequently other parts of the machine, and permit of uniformity throughout a series of different-sized machines.

The grates are made in sets attached to a bar, with the screen-wires b all lapping forward over the bar of the preceding set, as seen in section, Fig. 3 of the drawings, the bars being secured at their ends to rails attached to the sides of

the machine. Near the front end a board, G, extends across the machine, in front of the crank-shaft F, between the sides of section B, to which it is secured. This board, or "deflector," as it may be termed, has strips *g* dependent from it, passing at a suitable angle forward, between the bars E, and extending downward the required distance, for catching and deflecting downward any grain thrown upward by the cylinder. Sufficient room must be left for the straw to pass upon the apron under the dependent strips.

Below the grates B³ C' there is a shoe, H, hung upon hangers *h h*, and near the middle on each side are bolsters H', of a peculiar construction, as shown in Fig. 4 of the drawings, upon which the shoe is supported. These bolsters are fastened to the bottom of shoe H on each side, about midway of the length of the shoe, by means of screw-bolts *h' h'* passing through holes *h''' h'''* in the bolster. This bolster is preferably made of metal, and hollowed, as shown, for the reception of a socket-piece, *i*, having in its beveled face a socket, *i'*. On each side of the socket-piece *i* an elastic spring, forming cushions *i'' i''*, is introduced between the socket-piece and the end of the bolster, the whole being covered by a cap, *h''*, in which is a slot, *i'''*, for the crank-arm I of a rocking shaft, I', which is placed beneath and properly supported in the side pieces of the machine. An extension-arm, I'', is connected to a bar, J, the end of which is attached to one of the rakes K, that are operated by the crank-shaft F'', on the end of which, on the outside of the frame, is a pulley, *f''*, which receives its motion by a band from the pulley *f'*, above and forward of it, on the end of crank F', which receives its motion from crank F by the connection of the rakes E.

On the outer end of crank F is a pulley, *f*, which is connected by a band to the pulley *r'* on the shaft *r* of the fan R. The motion which is communicated to the under crank-shaft, F'', is transmitted by the connecting-bar J to the rocking shaft I', and by the crank-arm I a reciprocating motion is given to the shoe H by means of the bolster H'. At the same time the jar is greatly relieved by the springs *i'' i''* within the bolster.

H'' is a grate placed below the end of the shoe H and immediately above and back of the fan-tunnel R', so that as the grain and foreign

material drop upon the grate the blast carries off the lighter material and the grain passes through to any suitable receptacle that may be provided for it.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In combination with crank-shafts F F', a rake for grain-separators, consisting essentially of an angular rake extending from one crank-shaft to another, said rake being constructed with suitable bearings for the crank-shafts, and having a section secured to the end for extending the rake to any desired length for varying sizes of machines, so as to avoid the necessity for changing the crank-points, substantially as shown and described.

2. The combination of the main driving-shaft F, rakes E, second shaft, F', pulleys *f'* and *f''*, shaft F'', rod J, arms I'' and I, bolster H', and shoe H, whereby the shoe is reciprocated, substantially as shown and described.

3. In combination with a separating grate, one or more rakes and suitable mechanism for reciprocating them, said rakes being constructed with one or more teeth made longer than the regular teeth to pass below the wires of the grate and to break up and distribute the straw upon the backward movement of the rake, substantially as described.

4. The hollow bolster H', having the socket-piece *i* and springs *i''* fitting in said hollow bolster, the socket-piece *i*, having a socket in its face, said socket-piece and springs being covered and held in place by a cap screwed or bolted onto said bolster over the hollow opening, said cap having a slot in its face for the admission of the end of a crank-arm to the socket, substantially as shown and described.

5. The bars *b'*, supporting the grate nearest the thrashing-cylinder, arranged one above the other to deflect the grain thrown from the cylinder directly on the fan-shoe and lower grates, in combination with the grate B², thrashing-cylinder, fan-shoe, lower grate, and rakes E, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

DANIEL GEISER.

NORRIS D. GEISER.

Witnesses:

D. M. GOOD, Jr.,

D. C. UNGER.