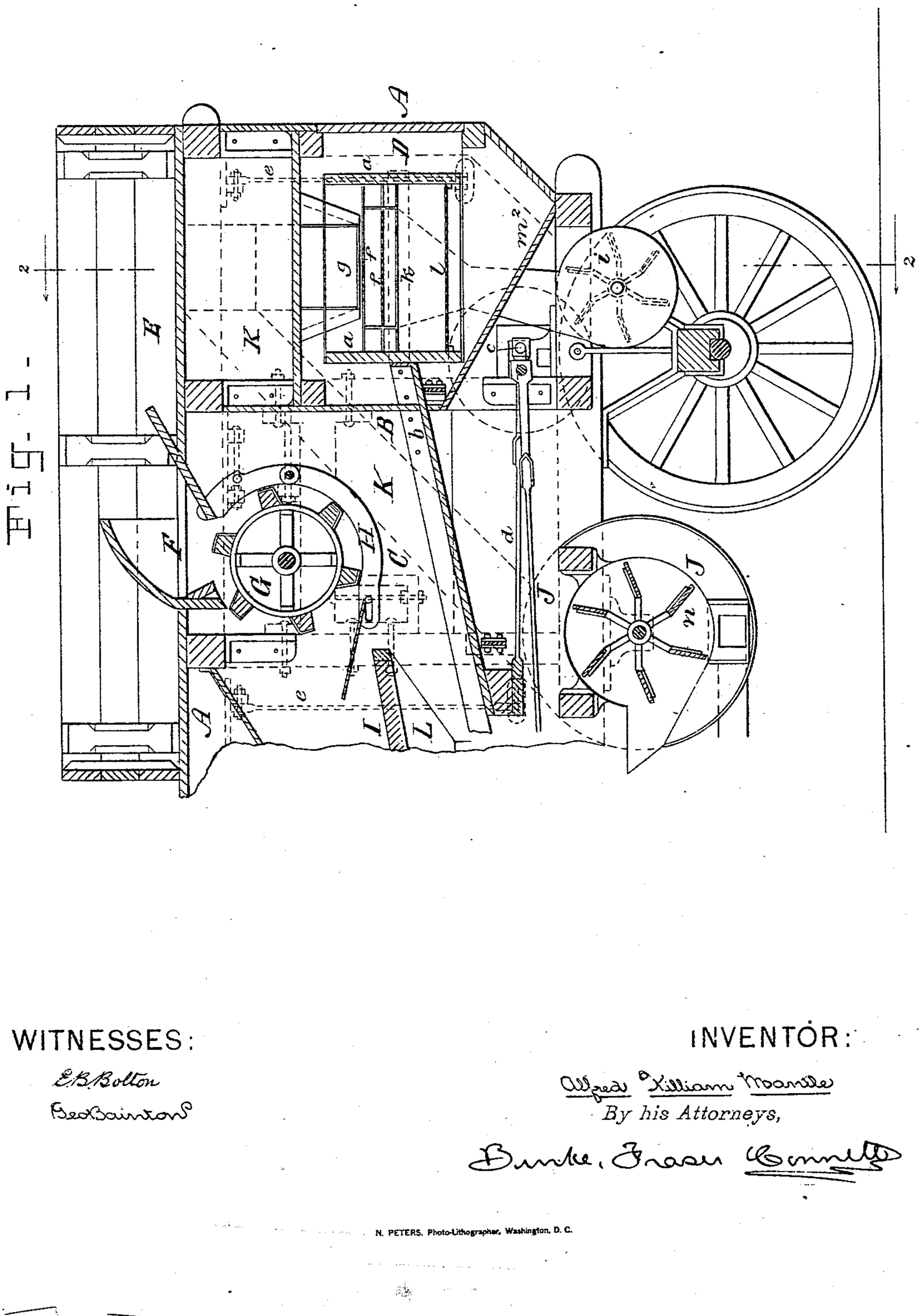
(No Model.) 2 Sheets—Sheet 1.

A. W. MANTLE.

THRASHING MACHINE.

No. 278,717. Patented June 5, 1883.



WITNESSES:

E. B. Bolton

Geo. Bainton

INVENTOR:

Alfred William Mantle

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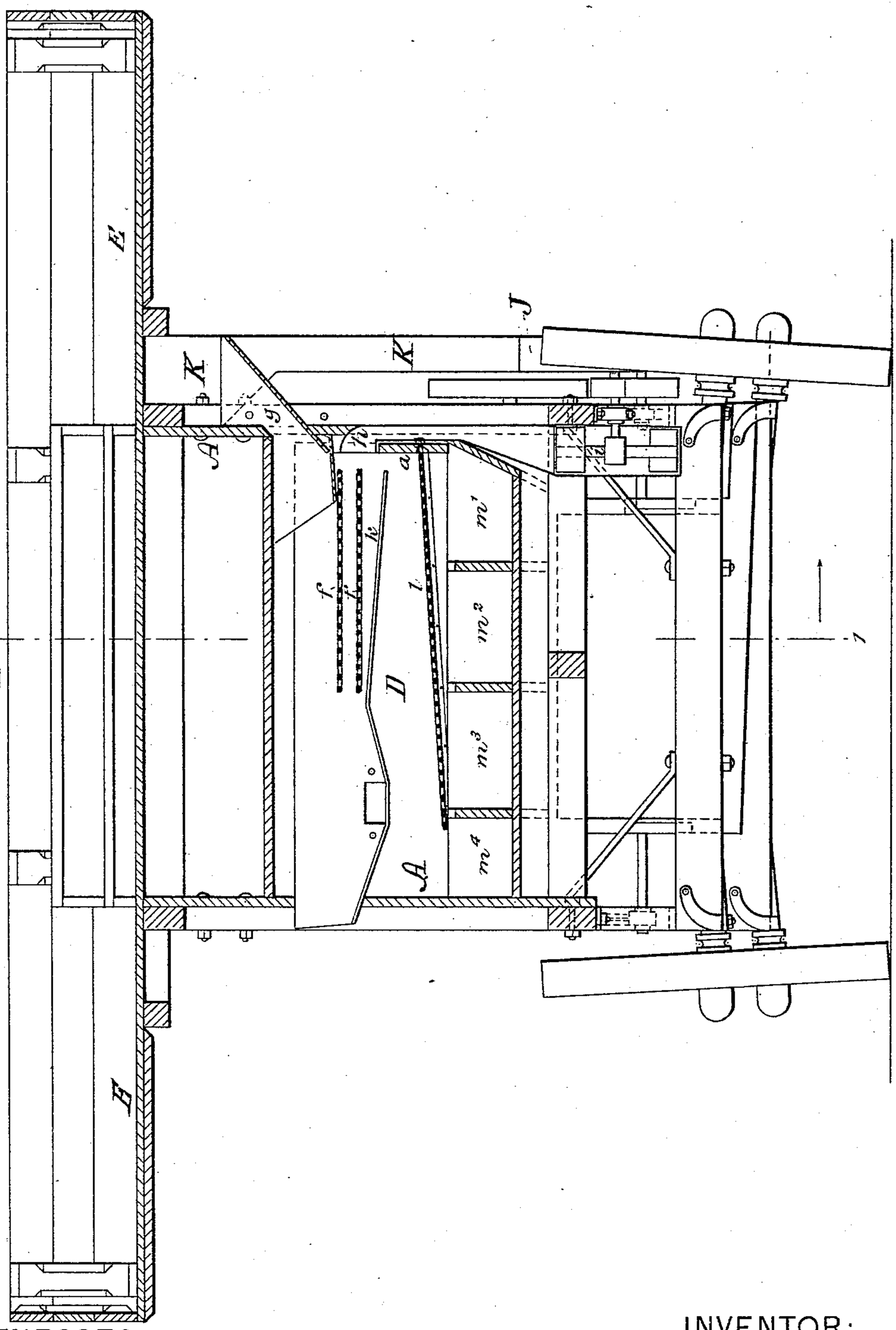
Fig. 2.



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UNITED STATES PATENT OFFICE.

ALFRED WILLIAM MANTLE, OF ECKERNFÖRDE, GERMANY.

THRASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 278,717, dated June 5, 1883.

Application filed September 6, 1882. (No model.) Patented in Germany November 17, 1881, No. 18,382; in England March 31, 1882, No. 1,563; in Belgium May 22, 1882, No. 57,999; in France May 24, 1882, No. 149,169, and in Austria-Hungary September 29, 1882, No. 23,692.

To all whom it may concern:

Be it known that I, ALFRED WILLIAM MANTLE, a subject of the Queen of Great Britain, residing at Eckernförde, Germany, have invented new and useful Improvements in Thrashing-Machines, of which the following is a specification.

This invention relates to those thrashing-machines which are provided with screening or separating apparatus to assort the thrashed grain and deposit the different grades in separate receptacles; and its object is to improve and simplify the construction of thrashing-machines so provided, and to better adapt the thrashing and assorting mechanisms to each other.

Figure 1 of the accompanying drawings is a fragmentary longitudinal section, cut along the line 1 1 in Fig. 2, of the front portion of a thrashing-machine constructed according to my invention, and Fig. 2 is a transverse section of the same, cut along the line 2 2 in Fig. 1.

A is the main or outer casing of the machine, which is divided transversely by a vertical partition, B, near its front end, as shown in Fig. 1, whereby are formed a large thrashing-compartment, C, extending to the rear of the machine, and a smaller separating and assorting compartment, D, extending thence to the front. On top of the casing is the usual feeding-platform, E, and through the top is the hooded feeding-opening F.

G is the revolving thrashing drum or beater, and H the concave or breasting within which it rotates. In the rear of the breasting, and in position to receive the straw as it is thrown from the beater, is the straw-shaker I, and beneath the breasting, where it receives the grain that falls through the latter, is the chute-board *b*, which is inclined rearwardly and delivers the grain to the caving-riddles, which are not shown. For an illustration and more complete description of the straw-shaker and caving-riddles and of the other mechanism for subjecting the grain to the initial dressing or cleaning, reference is made to my application No. 71,242, filed September 6, 1882. These parts have no particular connection with my present invention, and may be of any usual or suitable construction. Suffice it to say that the grain which falls through the breasting and is directed toward the rear by the chute-board, as well as that which falls through the straw-shaker, is all received on the vibrating caving-riddle, and the straws or cavings travel to the extremity thereof, while the grain falls through it and is conducted to the vibrating riddles or screens of a separator or fanning-mill, where it is subjected to a blast of air, (from a fan, *n*, Fig. 1,) which removes the loose chaff. From the last of these riddles it passes to an elevator, J, (shown in dotted lines in Fig. 1,) by which it is carried up through an inclined trunk or passage, K, to a spout, *g*, (shown best in Fig. 2,) which leads into the compartment D. In this compartment is suspended a shoe, *a*, containing the second cleaning and the assorting apparatus. The former consists of one or more horizontal riddles or screens, across which a blast of air is blown, coming from a pipe, *h*, which leads from a fan, *i*.

Beneath the riddles *f f* is an inclined chute-plate, *k*, fixed in the shoe *a*, by which the cleaned grain is caused to travel to the right in Fig. 2, and whence it falls onto the assorting-screen *l*. This screen is held in the shoe *a*, and is composed of three (or other number of) sections of different gage or mesh for dividing or assorting the grain into four qualities, which respectively fall into four hoppers or receptacles, m', m^2, m^3, and m^4, beneath the screen. The first section of this screen over the hopper m' is of closest mesh, and permits only the smallest grains to pass through. The second section is of coarser mesh, and permits somewhat larger grains to fall into the hopper m^2, while the third section is of the most open mesh, permitting still larger grains to fall into the hopper m^3, and over the fourth hopper, m^4, there is no screen, so that the largest grains, which are too large to fall through the meshes of the screen, are deposited in it. The screen *l* is removable in order that it may be exchanged for others having meshes of different size.

The chute-board *b* passes freely through the partition B, and is fixed rigidly to the shoe *a*, the two being suspended by four hangers, *e e*, in such a manner as to be free to reciprocate

longitudinally of the machine for a short distance. The chute-board is connected by a pitman, *d*, to a crank, *c*, on the rapidly-revolving crank-shaft of the machine, whereby the chute-board and shoe are given the rapid vibratory motion necessary to cause them to fulfill their functions. The other crank and pitman (shown in Fig. 1) are to vibrate the shoe L, bearing the straw-shaker, caving-riddles, and first cleaning-riddles of the thrasher.

By my invention a thrasher, a separator, and an assorter are all combined in one machine in compact and convenient form, and requiring only extremely simple mechanism to operate them. Heretofore thrashers have been provided with separating or cleaning mechanism to remove the loose chaff, and with vibrating sectional screens arranged one above another for assorting the grain and delivering the several grades to separate spouts; but these mechanisms have not been combined in such simple and compact form as by my invention.

I am aware that thrashing-machines have been provided with an assorting attachment consisting of a rotary cylindrical screen divided into sections, the several sections being made of different mesh or gage; but this necessitates journal-bearings which require lubrication and are subject to wear, has to be driven by special gearing, and is more expensive and less compact and convenient than my construction. By my method of connecting the chute-board *b* and shoe *a* rigidly together, the one mechanism for reciprocating them answers for both, and they are both suspended from one set of hangers *e e*, instead of requiring each a separate set of hangers, as would be necessary were they connected through jointed rods. The shoe *a* might, however, but with less advantage, be connected in similar manner to any other vibrating part of the thrashing mechanism.

I claim as my invention—

1. The combination, in a thrashing-machine, with the usual thrashing-drum, concave or breasting, and straw-shaker, of a suspended chute arranged beneath the drum, suitable mechanism for rapidly reciprocating said chute, a suspended shoe connected to said chute, so as necessarily to reciprocate therewith, an assorting-screen in said shoe, suitable means for conducting the grain delivered from the thrashing mechanism to said shoe, and a series of hoppers or receptacles arranged beneath said screen to receive the different grades of grain therefrom, substantially as set forth.

2. The combination, in a thrashing-machine, of the chute *b* and shoe *a*, fixed rigidly together, hangers *e e*, supporting the rear of said chute and the front of said shoe, whereby both said chute and shoe are suspended by one set of hangers, and crank *c* and pitman *d*, whereby both said chute and shoe are rapidly reciprocated, substantially as set forth.

3. The combination, with the reciprocating chute *b* of a thrashing-machine, and the crank *c* and pitman *d* for reciprocating it, of a shoe, *a*, connected to said chute, so as to necessarily reciprocate therewith, and cleaning or dressing riddles, *f f*, and sectional assorting-screen *l*, mounted in and reciprocating with said shoe, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ALFRED WILLIAM MANTLE.

Witnesses:
F. C. WÜRZINGER,
M. F. PELLETIER.