

No. 752,848.

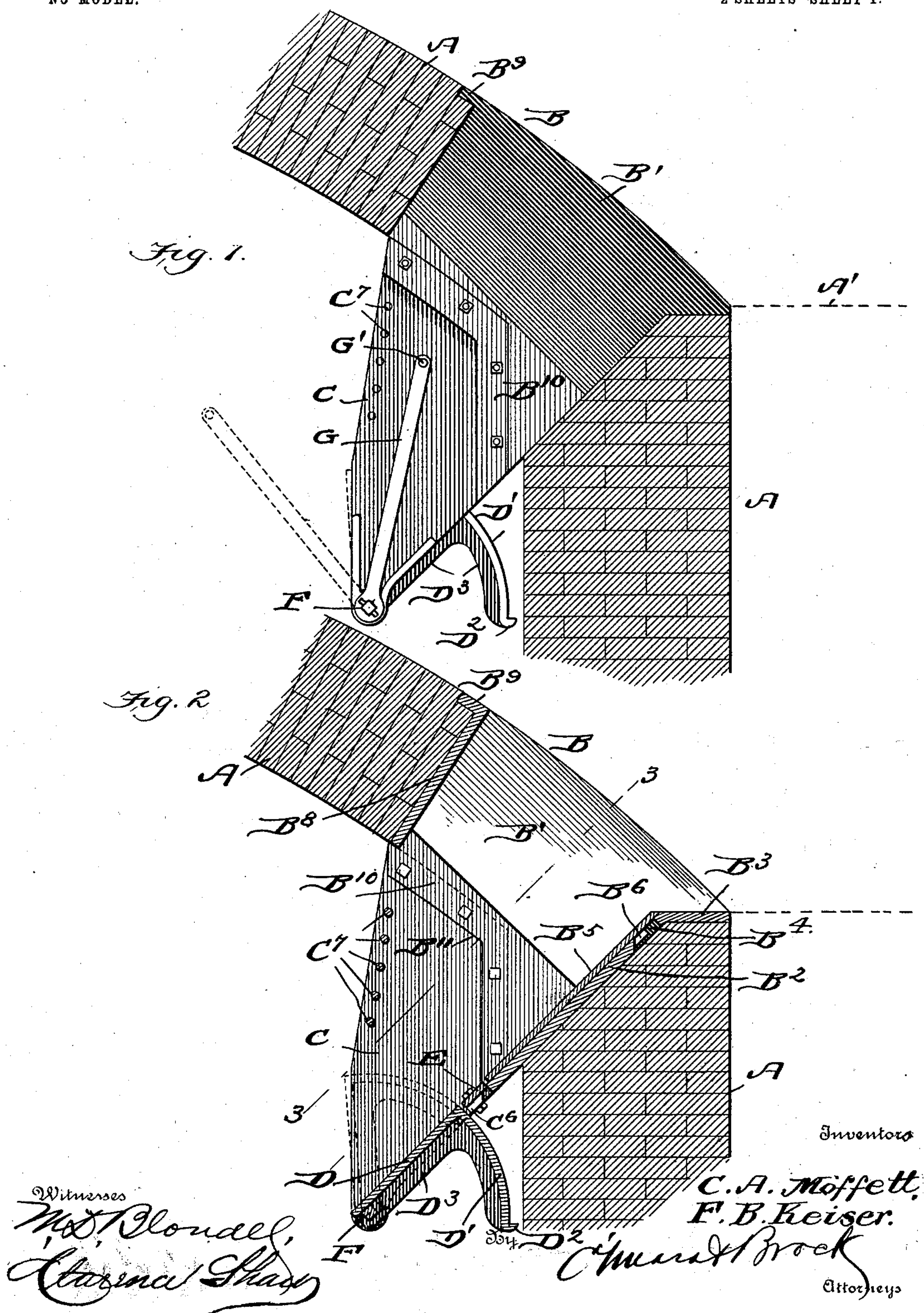
PATENTED FEB. 23, 1904.

C. A. MOFFETT & F. B. KEISER.
ORE OR GRAIN CHUTE.

APPLICATION FILED SEPT. 12, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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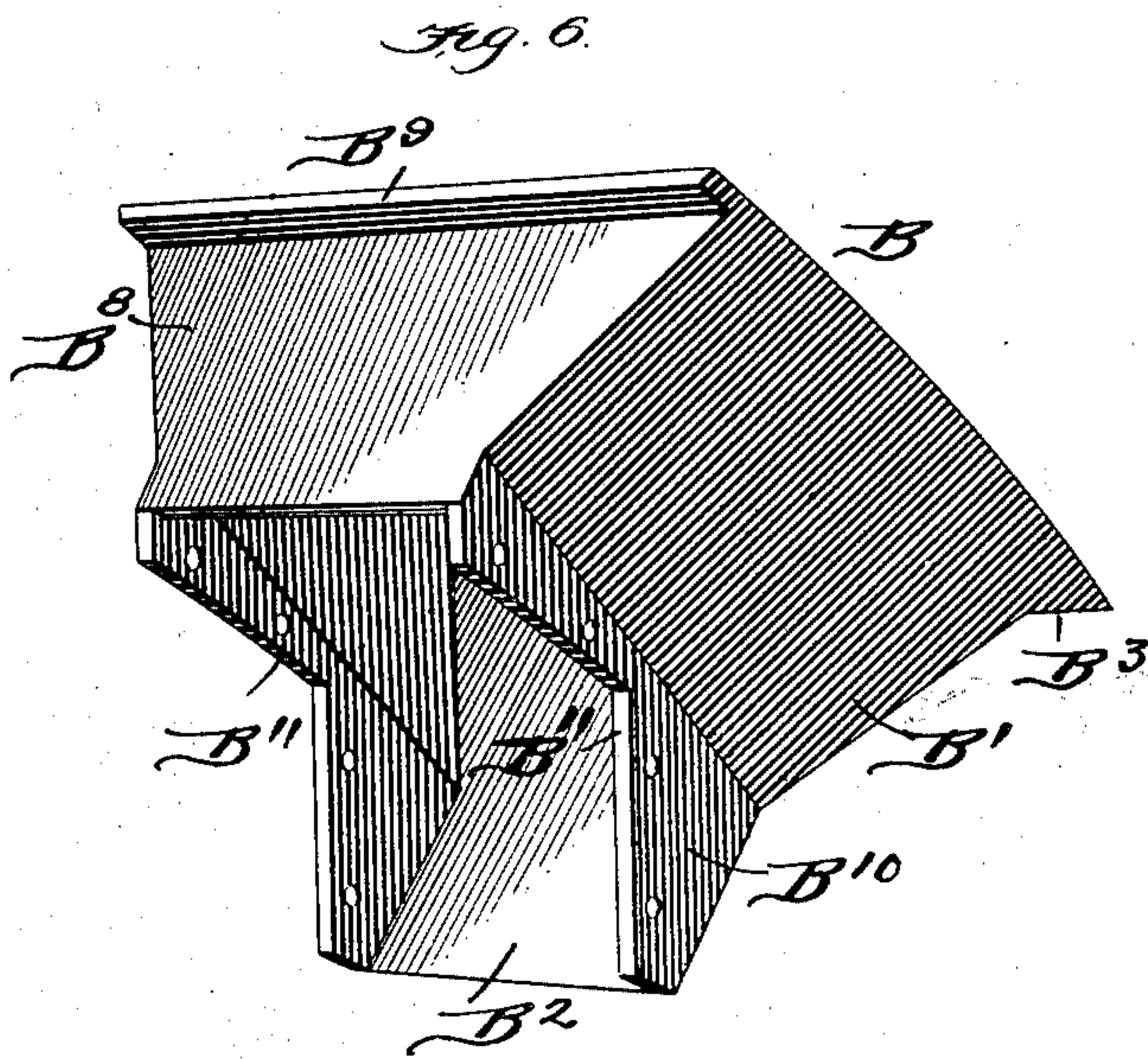
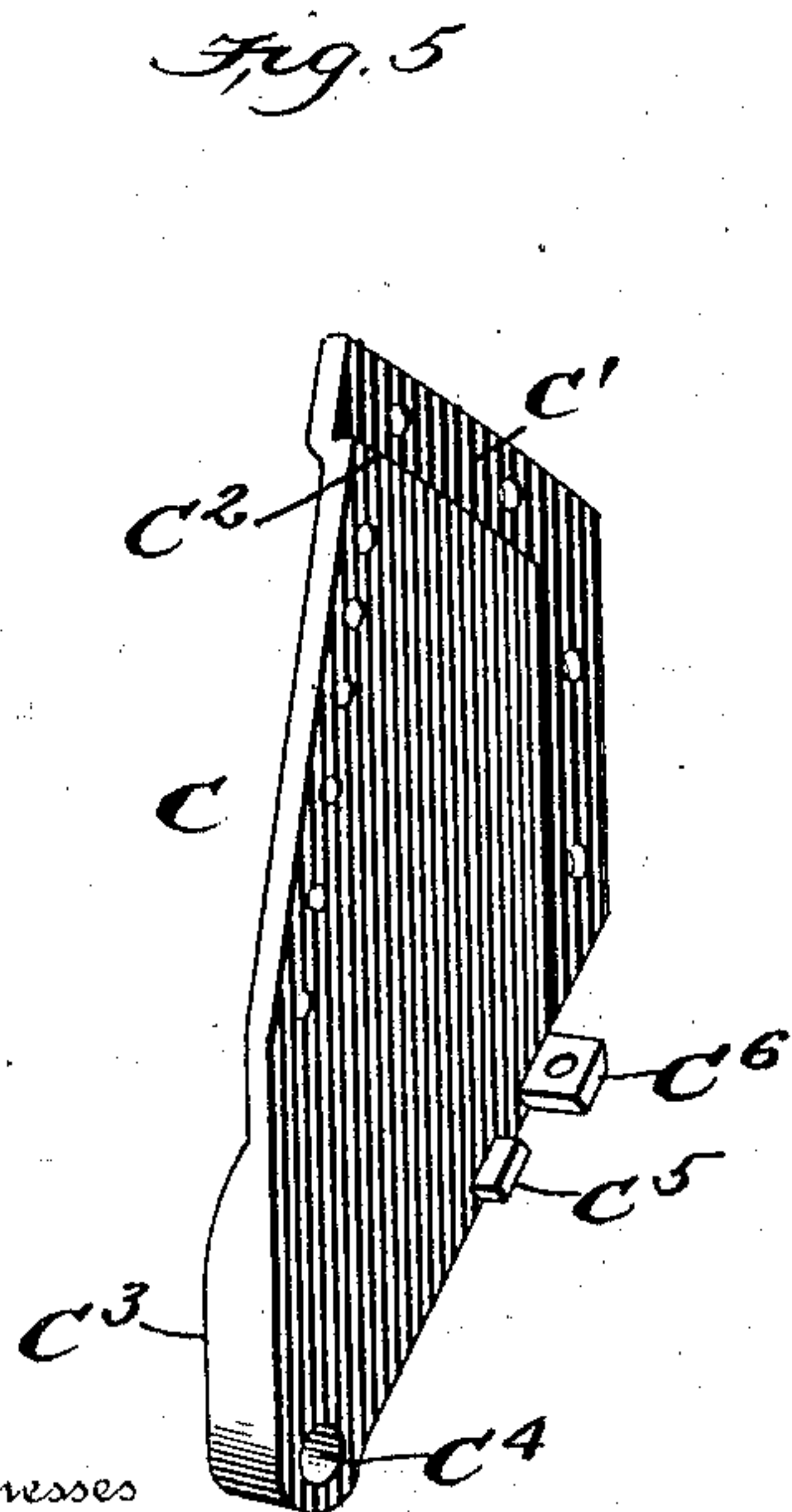
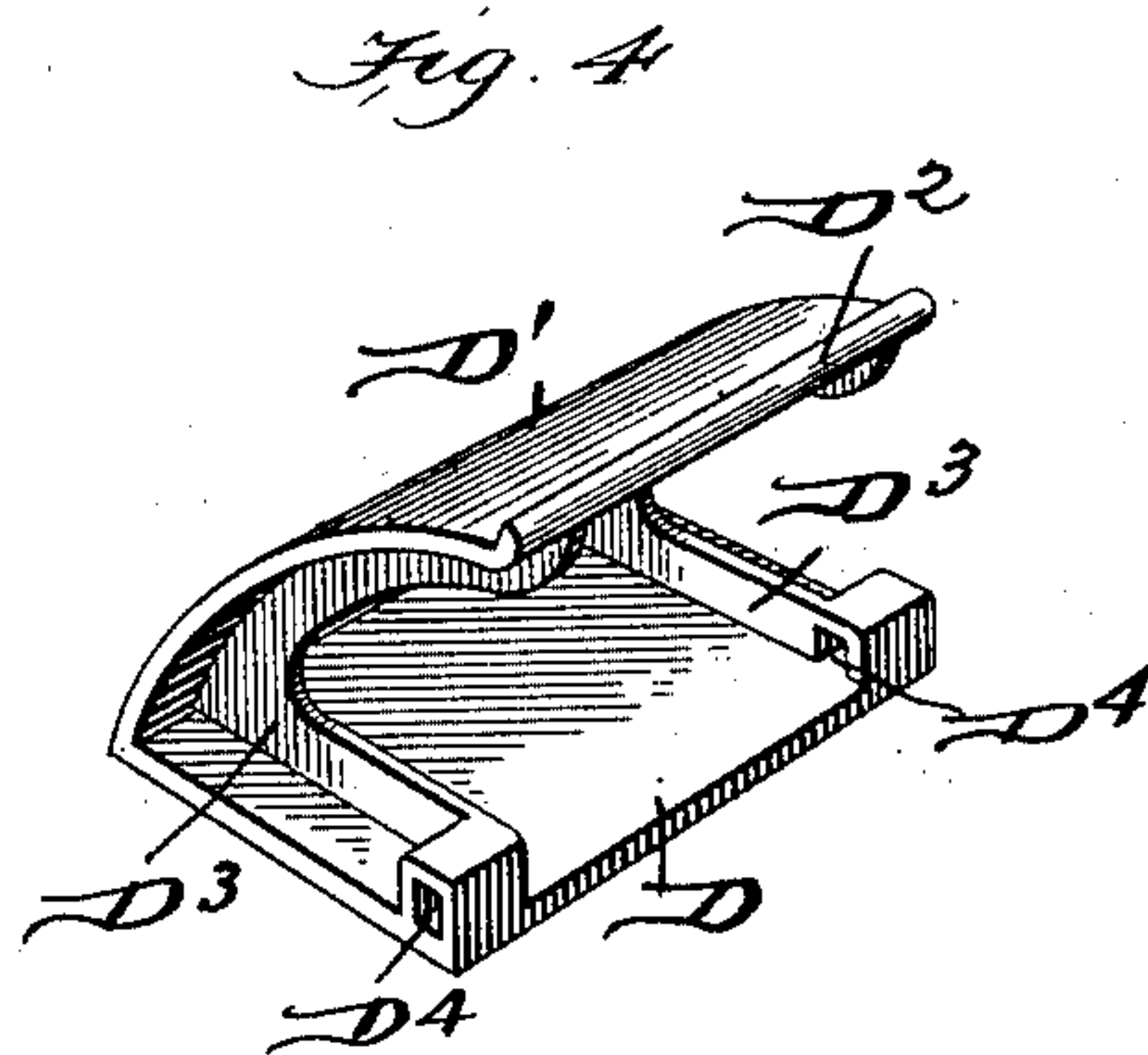
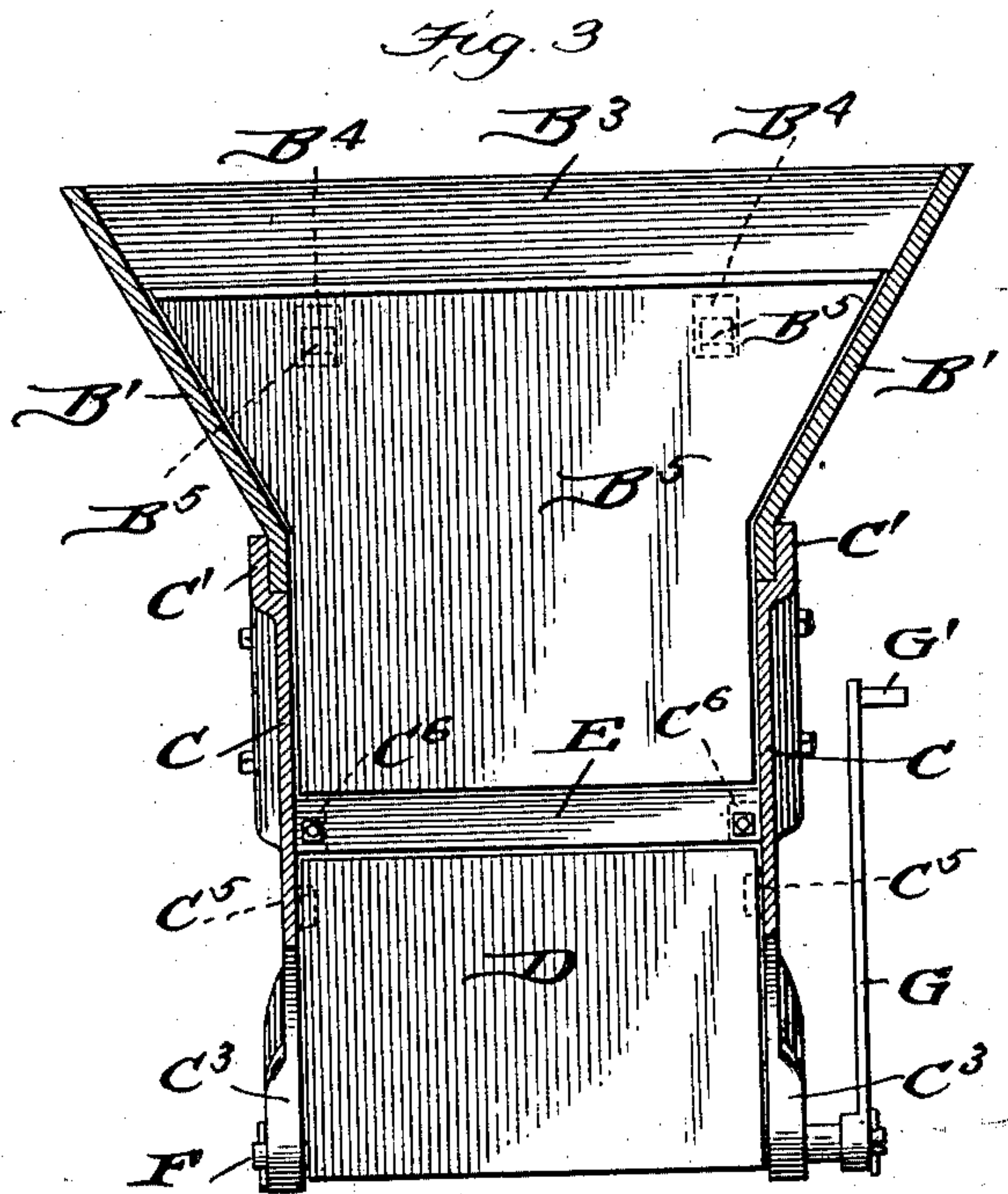
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2 SHEETS—SHEET 2.

NO MODEL.



Witnesses

W. B. Blouet,
Charles Shaw

Inventors
C. A. Moffett.
F. B. Keiser.

By O. Mearns & Brock
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES A. MOFFETT AND FRANKLIN B. KEISER, OF BIRMINGHAM,
ALABAMA.

ORE OR GRAIN CHUTE.

SPECIFICATION forming part of Letters Patent No. 752,848, dated February 23, 1904.

Application filed September 12, 1903. Serial No. 172,989. (No model.)

To all whom it may concern:

Be it known that we, CHARLES A. MOFFETT and FRANKLIN B. KEISER, citizens of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented a new and useful Ore or Grain Chute, of which the following is a specification.

Our invention is an improvement in chutes, and relates especially to the cut-off for said chute, the means of operating same, and the construction of the hopper. While designed especially for ore, coal, lime, &c., this chute can also be used in connection with grain and cotton-seed bins and can be arranged either on bins or in the floor of a warehouse, platform, or wharf.

Our invention consists in the novel features of construction and combination of parts hereinafter described, particularly pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of our chute, the position of the parts when the chute is open being shown in full lines. Fig. 2 is a vertical section, the chute being shown open in full lines and closed in dotted lines. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a perspective view of the gate. Fig. 5 is a perspective view of one of the side plates. Fig. 6 is a perspective view of the hopper.

In Figs. 1 and 2 we have shown a chute arranged in a tunnel-way extending under a warehouse or other place of storage, and either cars or carts can be run into said tunnel into position to receive the material delivered by the chute. In these drawings, therefore, A represents the brickwork of the tunnel, the floor-line of the warehouse being indicated at A'. An opening is formed in the arch of the tunnel in which is fitted a cast-iron hopper B. This hopper has the inwardly and downwardly converging side walls B' and rear wall B² extending downwardly and forwardly and having at its upper end an angled lip B³, adapted to lie flush with the floor of the warehouse or bottom of a bin. The plate B² has sockets B⁴ formed in it near the lip B³, and a removable wear-plate B⁵ fits over the plate B²

and has lugs B⁶ fitting in the sockets B⁴, holding the wear-plate in place. The front or upper side B⁸ of the hopper projects downward slightly below the sides and has an outwardly-extending flange B⁹, which is adapted to bear on the arch of the brick or masonry work. From the converging side walls B' extend downward vertical parallel walls B¹⁰, integral with the walls B', and the front portion of these walls are cut out, as shown at B¹¹. The side plates C are of an irregular shape and have their upper and rear marginal portions offset, forming thereby a flange C' and a shoulder C². This flange fits over and is bolted to the margin of the cut-out portion of one of the plates B¹⁰, there being two of the plates B¹⁰ and two of the side plates C. The lower front portions of the plates C are thickened, as shown at C³, and have suitable bearings C⁴ formed therein for a shaft. On the lower inner edge of each side plate C are inwardly-extending lugs C⁵ and C⁶, the latter slightly to the rear and larger than the former.

The cut-off gate comprises a plate D, having a flat surface, and a curved plate D' integral with and at an angle thereto, the curved plate extending back over the plate D. Along its free end the plate D' is formed with a lip D². Longitudinal strengthening-ribs D³ are formed on the under sides of these plates, and at the free end of the plate D these ribs are thickened and have bearings D⁴ for a square shaft formed in them.

In constructing a chute the hopper B is arranged in the opening in the tunnel-arch, the lip B³ resting on the side wall and flush with the floor. The side plates C are bolted into position, the edge B¹¹ bearing on the shoulder C². The two side plates C are parallel and are connected along their upper front edge by a plurality of bars C⁷. A removable plate E rests on and is bolted to the lugs C⁶. A shaft F, square intermediate its ends and rounded adjacent the ends, is fitted in the bearings D⁴ and C⁴ and pivotally secures the cut-off gate to the side plates. One end of this shaft projects beyond the sides of the chute and has secured on it a lever G, in the free end of which is arranged a pin G'. When the lever is

thrown into the position shown in full lines in Fig. 1, the edges of the plate D rest on the lugs C⁵, the upper surface of the plate D forming a continuation of the chute, and the curved plate D' depends below the chute. When the lever is thrown into the position shown in dotted lines in Fig. 1, the plate D is raised and the curved plate is drawn upward, working between the lugs C⁵ and C⁶ and cutting off the flow of material through the chute. The lip D² contacts with the edge of the plate E and limits upward movement of the plate D' and also serves to make a tight joint, preventing fine material, such as coal-dust or grain, from escaping between the plates D' and E. When grain, cotton-seed, or fine material is to be discharged, suitable plates or screens may be placed on the bars C⁷. The bars, however, will be sufficient with such material as coal, lime, and ores.

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

1. A chute comprising a hopper the rear wall of which forms the bottom of the chute, detachable side walls carried by the hopper, a cut-off gate pivotally carried by said side walls and adapted when lowered to open the chute and form a continuation of same and when raised to close the chute.

2. A chute comprising a hopper, the rear wall of said hopper extending downwardly and forwardly below the front wall, parallel, vertical side walls secured to the side walls of the hopper, a cut-off gate formed of an angled plate pivoted between the parallel side walls, one of said plates forming a continuation of the chute when the gate is lowered and the other closing the chute and checking the flow of material when the gate is raised.

3. A chute of the kind described comprising a hopper having downwardly and inwardly converging side walls, parallel, depending side walls integral with the inwardly-converging walls, a rear wall extending downwardly and forwardly below the front wall, parallel depending side plates bolted to the depending side walls of the hopper, a plurality of parallel bars connecting the side plates in their upper front portions, and a cut-off gate pivoted at the lower, front corners of the side plates, and forming when lowered, a continuation of the rear wall of the hopper and when raised having a front upper edge resting adjacent the bars.

4. The combination with a hopper and the side walls of a chute, the said side walls consisting of plates having bearings formed at their lower, front corners and lugs extending inwardly from the sides of each plate, of a cut-off gate comprising a flat and a curved plate arranged at an angle to each other, and a shaft rigidly secured to the flat plate adjacent its free end and rotatably journaled in the bearings of the side plates, the curved plate swing-

ing between the lugs of each side plate and closing the chute when raised and the flat plate bearing on a lug of each side plate, and forming a continuation of the chute when the curved plate is lowered.

5. In a chute of the kind described, a hopper having side walls inwardly and downwardly converging in their upper portion, and vertical and parallel in their lower portion, the said parallel walls being cut in their lower front portion, a front hopper-wall having an outwardly-extending flange, a rear wall extending downwardly and forwardly to a line below the plane of the front wall, a detachable wear-plate secured to the said rear wall of the hopper, detachable side plates secured to the side walls of the hopper and extending downward below same, a plurality of bars arranged across the front of the chute and carried by said side plates, and an angled cut-off gate pivotally secured between said side plates, and adapted to form a continuation of the rear wall of the hopper when the gate is opened.

6. The combination with a hopper having its lower portion cut away at the front, of side plates having offset marginal portions on two sides, the said offset marginal portions fitting over and being secured to the cut-out portion of the hopper, stop-lugs formed on each of said side plates, and a cut-off gate pivoted between said side plates and comprising a flat plate and a curved plate, the curved plate swinging between said lugs and having a lip engaging a lug on each side plate when the gate is raised and the flat plate resting on the other lugs when the gate is lowered.

7. A chute of the kind described comprising a hopper having its lower front portion cut out, side plates having an offset marginal portion and a shoulder parallel to such portion, said shoulder fitting against the edge of the cut-out portion of the hopper, transverse bars arranged across the front of the chute and carried by said side plates, and a cut-off gate swingingly pivoted between said side plates below the bars and adapted to swing to a point adjacent the bars and close the chute when raised, and to swing away from the bars and open the chute when lowered.

8. In a chute, the combination with the lower side plates of the chute having bearings formed therein, of front and rear lugs extending inwardly from each plate, a transverse strip resting on the rearmost lugs, a flat plate having square bearings, formed adjacent one end and on its under side, a square shaft fixed in said bearing on the plate and having cylindrical end portions journaled in the bearings of the side plates, an integral curved plate extending downward from the non-pivoted end of the flat plate, said curved plate working between the front and rear lugs of the side plate, a lip formed along the end of the curved plate and contacting with the rear lugs when the gate is

raised, and the flat plate resting on the front lugs when the gate is lowered and forming a continuation of the chute, and a lever rigidly secured to one end of the shaft.

- 5 9. The combination with a chute having parallel sides, of a cut-off gate swingingly pivoted between said sides, and comprising two plates arranged at an angle to each other, lugs formed on the sides of the chute and adapted to be engaged by both plates, one of said plates being
- 10

adapted to close the chute when in engagement with the lugs and the other plate forming a continuation of the chute when brought into engagement with the lugs, substantially as described.

CHARLES A. MOFFETT.
FRANKLIN B. KEISER.

Witnesses:

DAVID HANCOCK,
T. E. YATES.