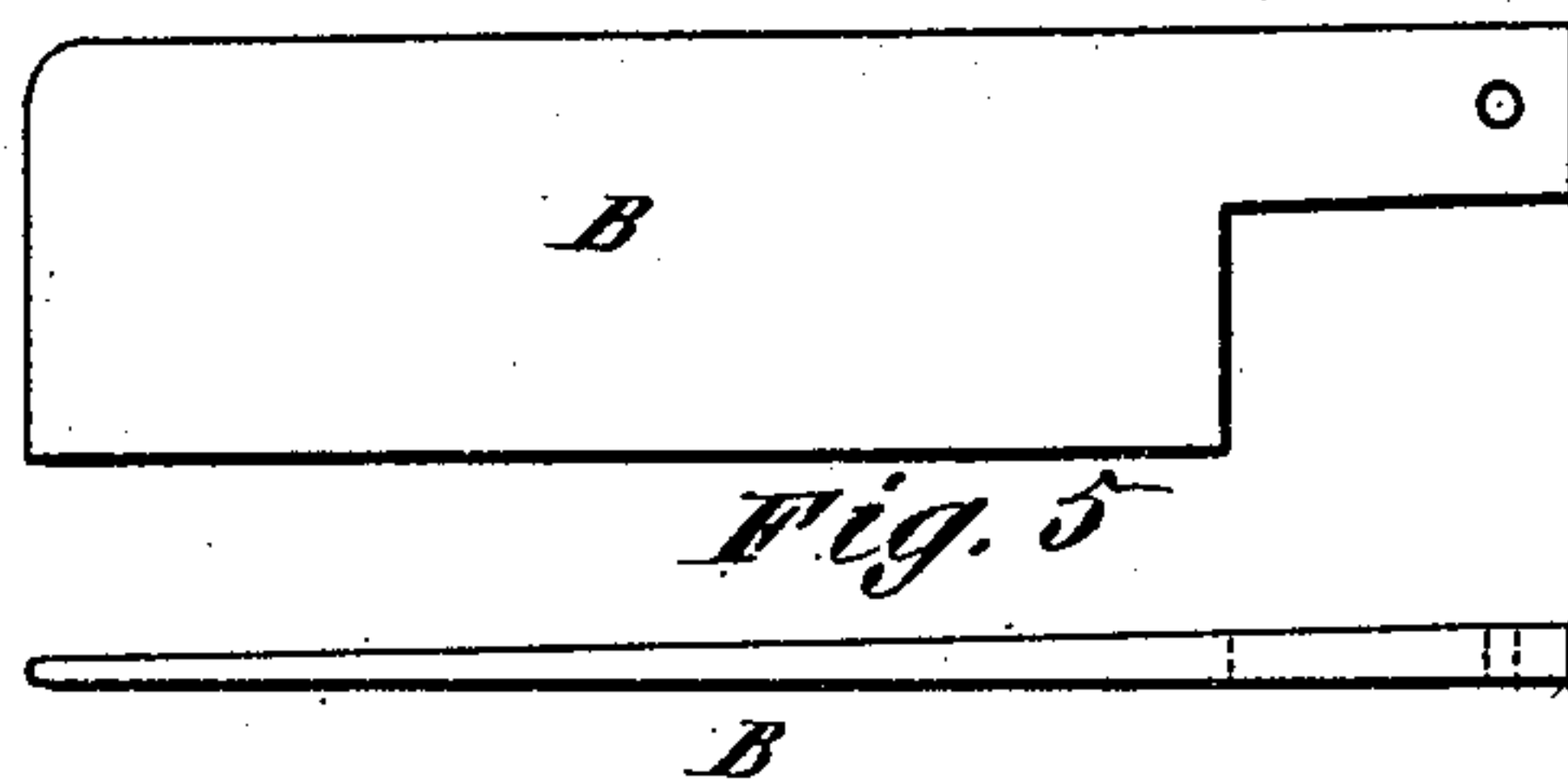
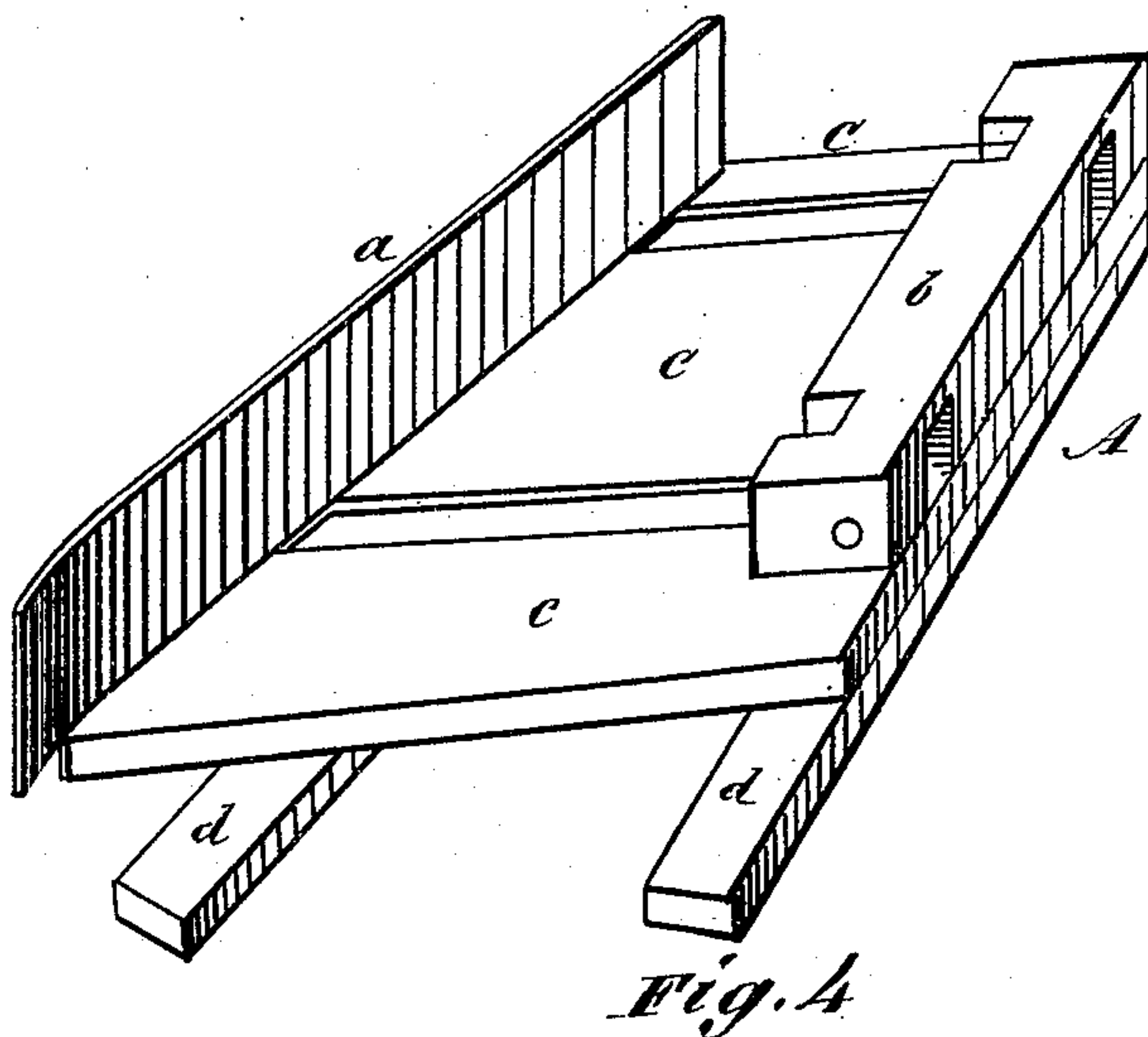
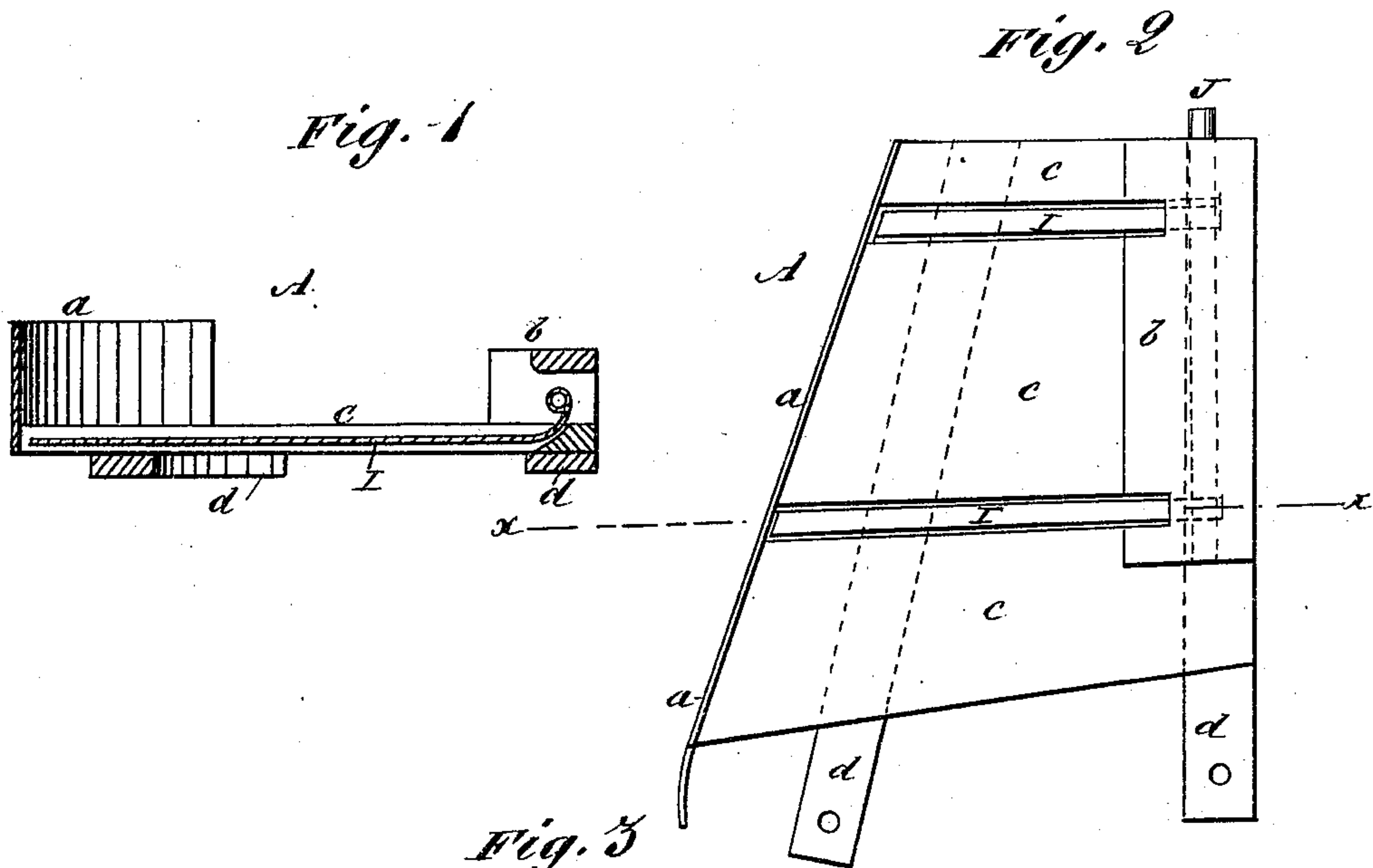


J. GARRARD.
GRAIN-BINDER.

No. 178,757.

Patented June 13, 1876.



Witnesses.
Le Blond Burdett
Wm. H. Pearce

Inventor.
Jephthah Garrard
Knight & Bros
His Attorneys

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Fig. 6

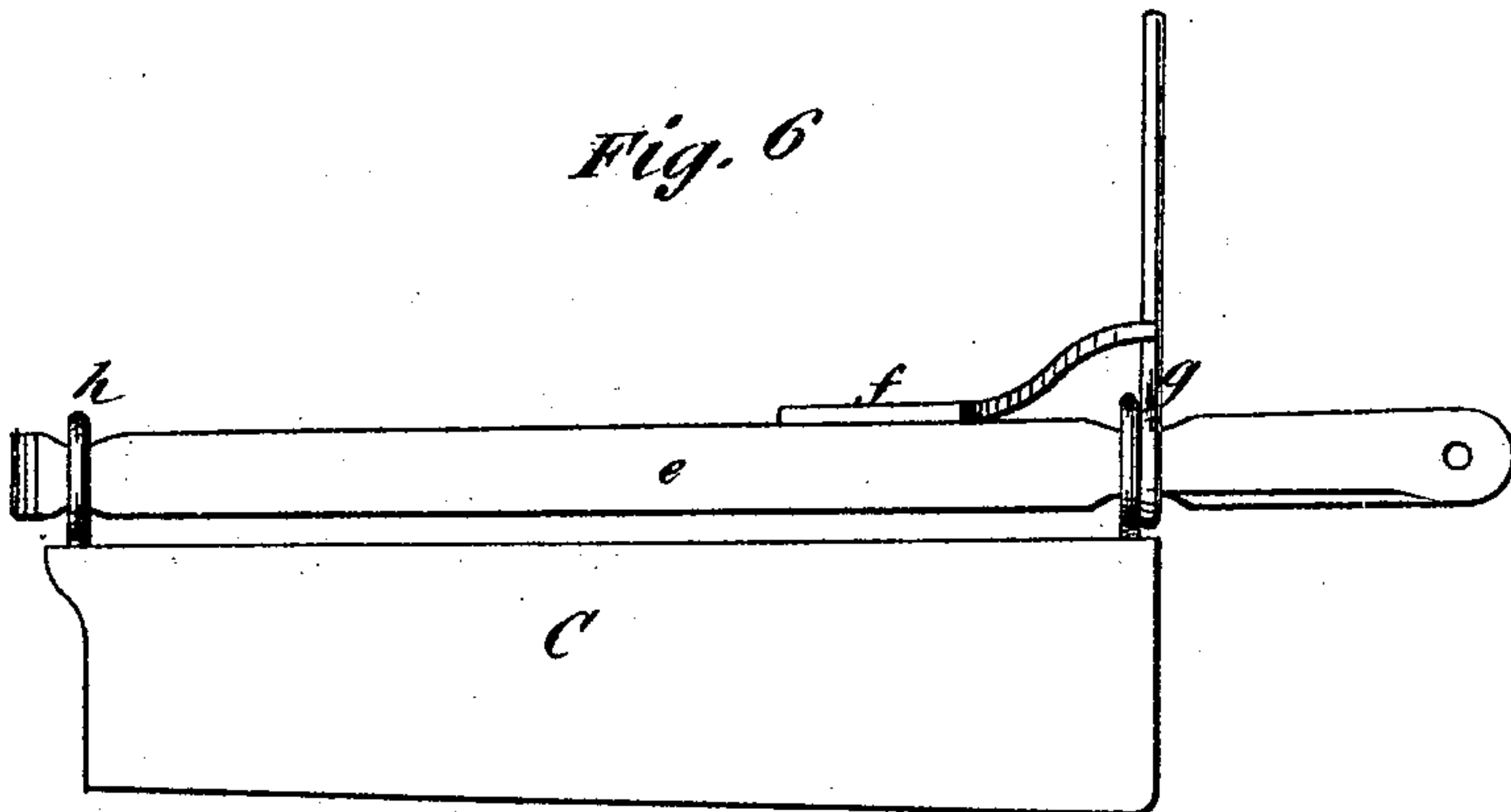


Fig. 7

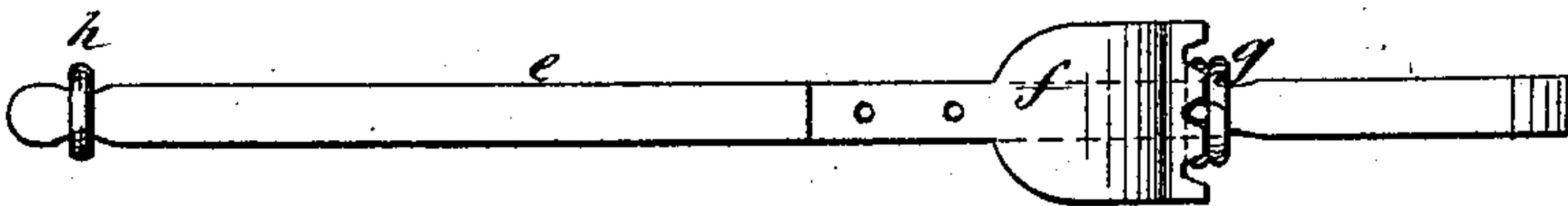
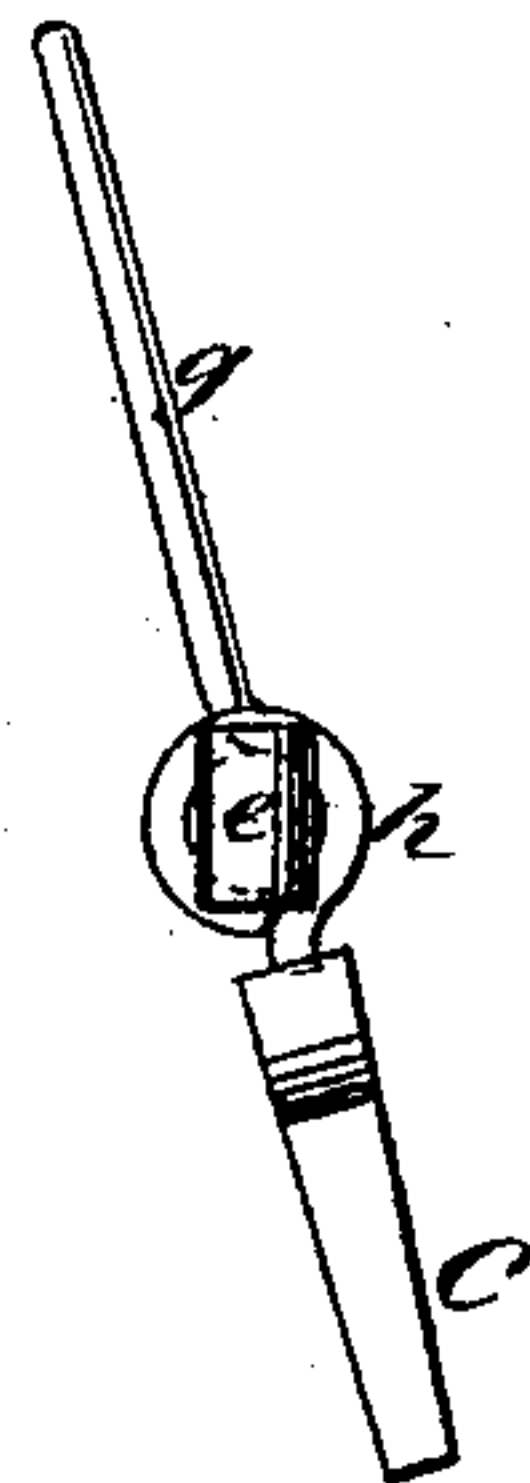


Fig. 8



Fig. 9



Witnesses.
Le Blond Burdett
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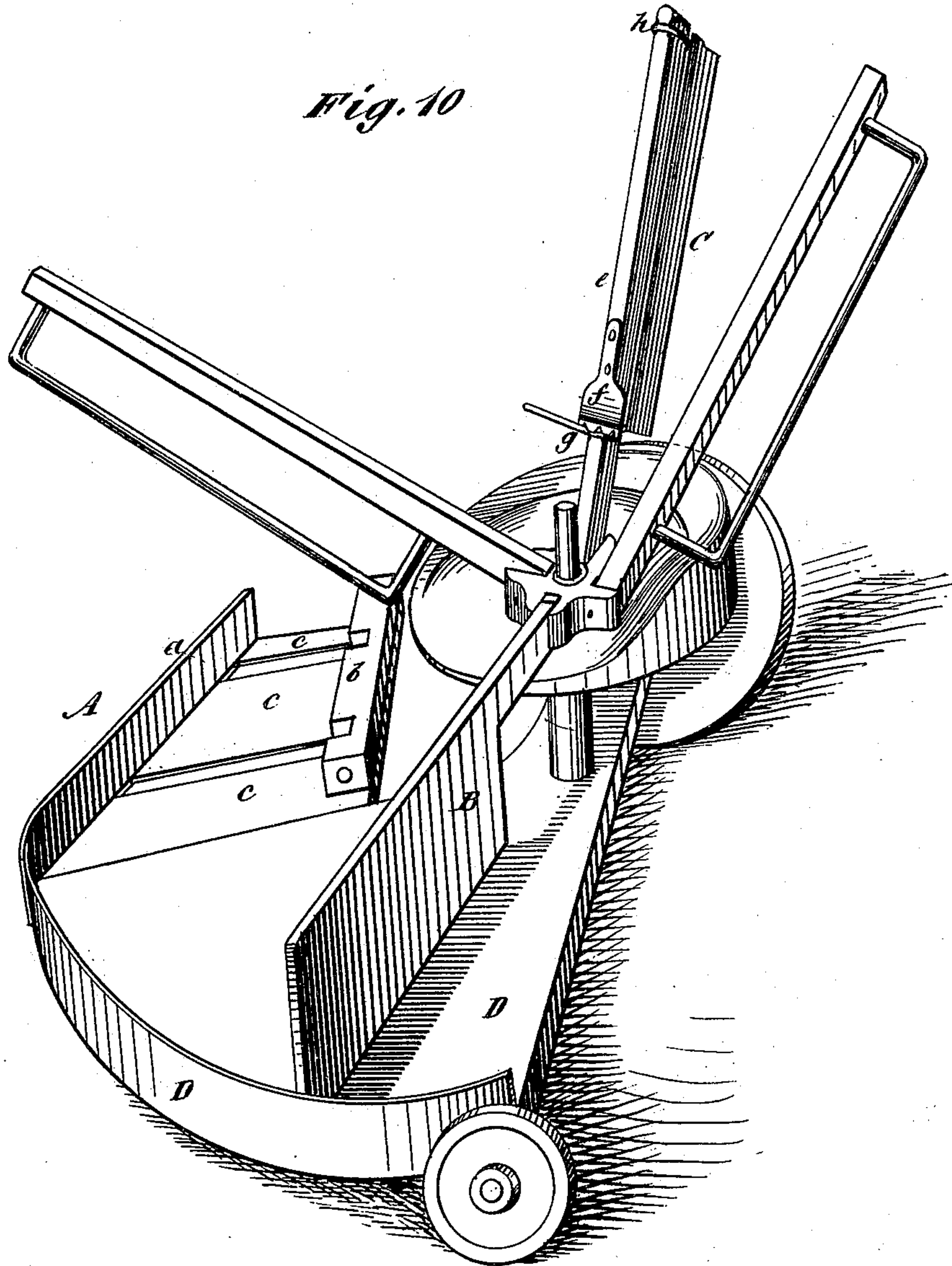
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Fig. 10



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UNITED STATES PATENT OFFICE

JEPHTHA GARRARD, OF CINCINNATI, OHIO, ASSIGNOR TO EXCELSIOR GRAIN-BINDER COMPANY, (LIMITED,) OF NEW YORK, N. Y.

IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. 178,757, dated June 13, 1876; application filed April 7, 1876.

To all whom it may concern:

Be it known that I, JEPHTHA GARRARD, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain Improvements in Grain-Binders, of which the following is a specification:

I replace the teeth of the ordinary sweep-rake by a plain smooth surface, of any suitable material, which, coming in contact with the butts of the cut grain, shall push them onto the binder-platform. The function of such smooth surface is to keep the butts positively ahead of the raking device whatever resistance the grain may meet with.

The construction of the binder-platform, in combination with the reaper-platform and said smooth-surfaced raking device, is such that the gavel is forced onto the binder-platform partially gathered and closed up. Upon reaching the binder-platform the heads of the cut grain are forced rapidly together by the elevated surfaces and corner, above described. The pressure of the heads together, which increases by reason of the converging elevated surfaces and corner, tends to bring the butts together. This pressure of the gavel toward its head increases continuously, and the butts travel along the rake toward its outer end as far as said corner, forced thereto by the resistance of said corner. It is therefore necessary to the working of this combination that the distance of said corner or turning-point of the gavel on *b* of platform A from said outer elevated surface of said platform A shall be less than the length of the raking device.

The operation of the movable smooth-surfaced raking device is evident, and the function of the different angles of inclination of the raking device is to vary the point at which it shall leave the butts of the gavel in pushing it onto the binder-platform. This movable raking device may be connected with, and controlled from, the socket-head of the sweep-rake instead of the rake-head.

In the accompanying drawing, Figure 1 is a view, in vertical section, of binding-platform through line *xx* of Fig. 2. Fig. 2 is a plan view of binding-platform. Fig. 3 is a perspective plan of binding-platform. Fig. 4 is a side elevation of the arm of the rake having the

plain surface. Fig. 5 is a top view of same. Fig. 6 is a side elevation of the arm of the rake and the movable plain-surfaced raking device. Fig. 7 is a top view of same. Fig. 8 is an end view of same. Fig. 9 is an end view of same, showing the raking device inclined. Fig. 10 is a perspective view of binding-platform, grain-platform, and raking devices combined.

A is the binding-platform. *a b c d* are parts of same.

a is an elevated surface on rear end of platform, of suitable height for retaining and directing the grain onto the platform-floor. This may be slotted. *b* is the elevated part on the front side. The elevated surface thereof at right angles to floor of binder-platform serves to guide and retain the grain as it comes on the binder-platform; the top surface may serve to support the grain while it is bound; and the inner corner nearest the grain-platform of the reaper, to which the binder-platform is attached, serves as a turning-point for the grain as it is forced onto the binder-platform. *d* are the supporting-cleats, by which the binder-platform is connected to reaper-platform.

I I represent arms carried on a shaft, *J*, and employed to elevate the grain, with the wire around it, to the binding-table *b*.

B is the arm of the rake, having a plain surface.

C is the movable plain-surfaced raking device. *e f g h* are parts of same. *f* is a rack. *g* is a hinge and lever. *h* is a hinge. *e* is an ordinary sweep-rake head.

By adjusting the lever *g* in the rack *f* the sweep-blade C may be fixed in vertical position, or inclined in either direction, as desired.

Suitable devices for binding the grain I have described and claimed in earlier applications for Letters Patent.

The cutting mechanism and the mechanism for operating the sweep-rake may be of any ordinary or suitable construction, and do not require specific description.

Any desirable number of rake-arms may constitute simple reel-arms or beaters.

Operation: The grain being cut and laid on the raking-platform in customary manner, each

sweep-blade B or C, as it comes around, takes the butts of the accumulated body of grain and carries it, without possibility of scattering, around the raker-platform, and forces it, heads foremost, onto the binder-platform, by the converging walls of which it is pressed into a compact body. The arms I I are then thrown up, elevating the grain to the table b, with the wire around it. The wire is then drawn, cut, and twisted, and the sheaf discharged by any suitable mechanism.

I am aware that toothless devices have long been used to sweep the grain laterally from the platform, on which it falls. My raking device differs from these, in that it carries the grain backward on the platform by contact with the butts of the straw.

Having thus described my invention, the following is what I claim as new and desire to secure by Letters Patent:

1. The combination, with a quadrant grain-platform, of a sweep-rake having on one or

more of its arms plain-surfaced raking devices, arranged to act directly on the butts of the grain, substantially as set forth.

2. The combination of a quadrant grain-platform, a binder-platform, and a sweep-rake, having on one or more of its arms plain-surfaced raking devices, arranged to act directly on the butts of the grain, and deliver it in even condition to the binder, substantially as set forth.

3. A plain-surfaced raking device, C, adjustable on its arm, substantially as set forth.

4. The combination of a sweep-raking device, a quadrant grain-platform, and a binder-platform, whose rear wall trends forward from a line tangential to the rear of the grain-platform and parallel with the cutter-bar.

JEPHTHA GARRARD.

Witnesses:

WM. BURNET, Jr.,
G. A. CURTISS.