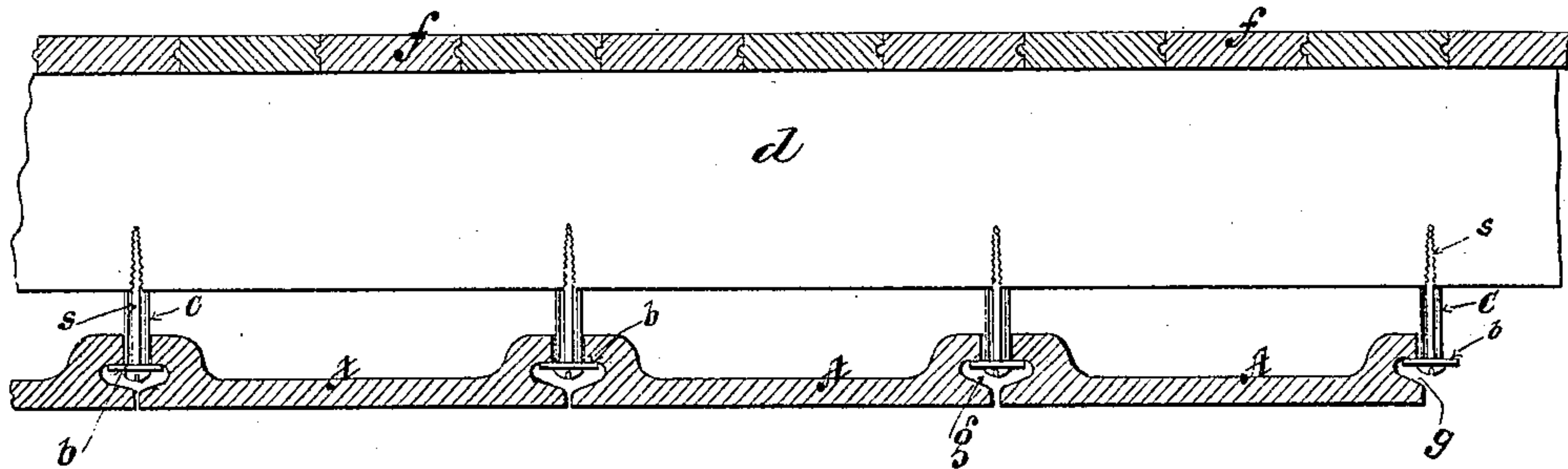


(No Model.)

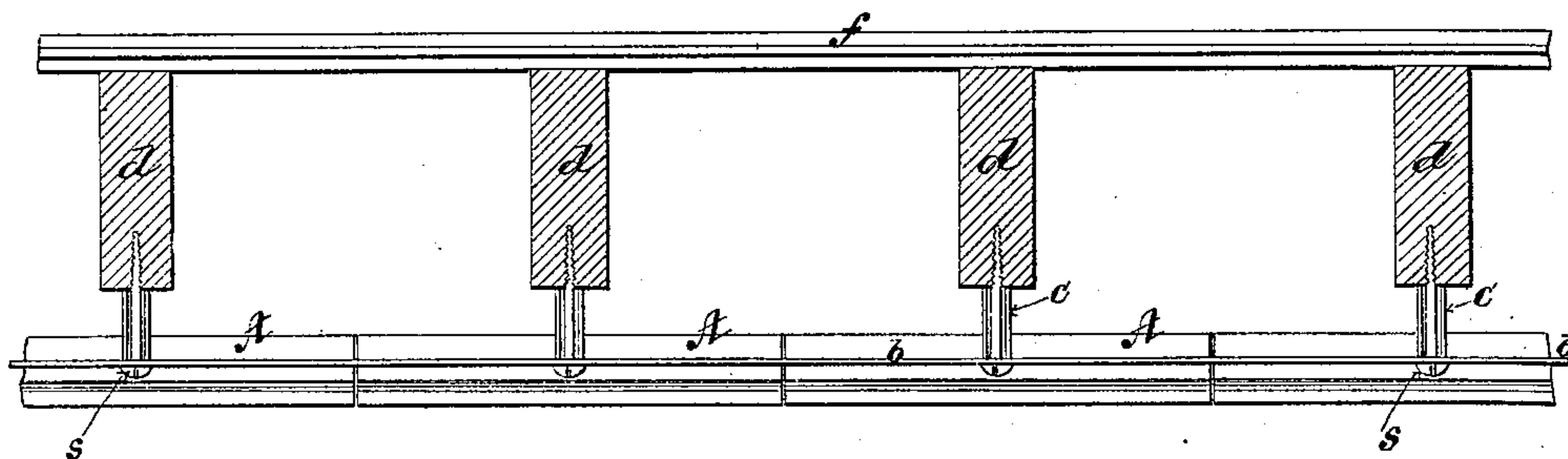
E. V. JOHNSON.  
FIRE PROOF CEILING.

No. 270,677.

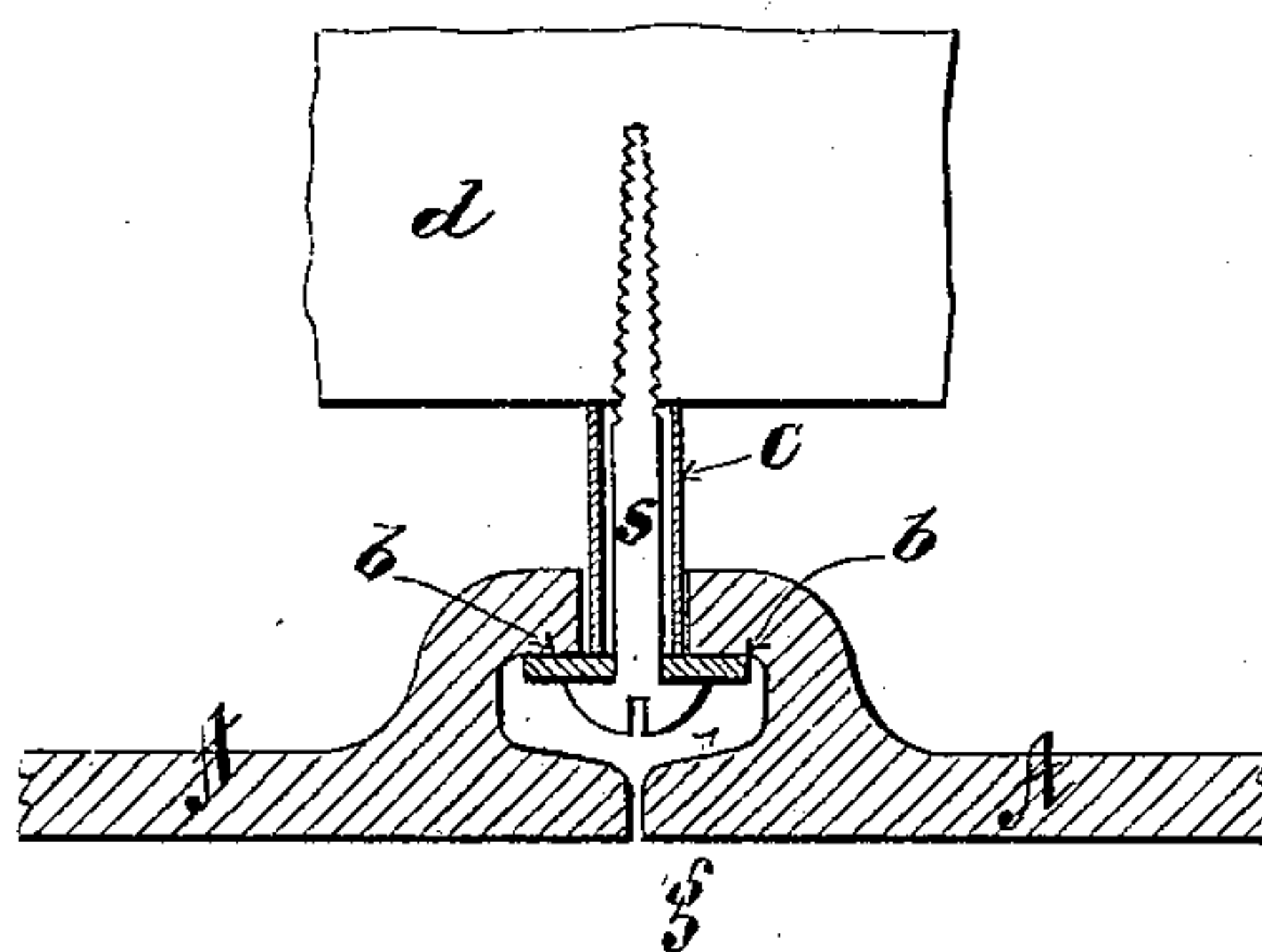
Patented Jan. 16, 1883.



— Fig I, —



— Fig II, —



— Fig III, —

— Witnesses —  
V. W. Snell  
C. F. Eiken

— Inventor —  
Ernest V. Johnson

# UNITED STATES PATENT OFFICE.

ERNEST V. JOHNSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE OTTAWA TILE COMPANY, OF SAME PLACE.

## FIRE-PROOF CEILING.

SPECIFICATION forming part of Letters Patent No. 270,677, dated January 16, 1883.

Application filed August 21, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ERNEST V. JOHNSON, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful  
5 Improvement in Fire-Proof Ceilings; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

10 My improvement relates to the manufacture and application of a fire-proof ceiling made of non-combustible material suspended from band-iron strips secured in place of use with bolts or screws.

15 It consists of the form and method of application of the ceiling and the manner in which it is supported upon plain band-iron strips held rigidly in position by means of small iron separators, whereby the entire ceiling can  
20 be applied to the under side of an ordinary wood-floor construction without coming in contact with the wooden joists.

The object of my invention is to enable those skilled in the art to manufacture and apply a  
25 fire-proof ceiling as a protection to the floor-joists of wood floors or roofs of buildings in such a manner that the hazard of great conflagrations can to a large extent be controlled by confining the fire to its place of beginning.  
30 I accomplish this result by using a fire-proof material suspended from the portions of the building requiring protection in a manner calculated to resist for one hour or more the heat of as hot a fire as can be generated from ordinary causes. The fire-proof material between  
35 the band-iron strips can be made of any non-combustible material, such as hollow or solid tile, porous tile, or cement or plaster-of-paris, and various other combinations of material;  
40 but I propose to use a tile for this purpose composed of fire-clay, somewhat analogous to fire-brick, which I consider the best and cheapest material for the purpose.

In the accompanying drawings, Figure I is  
45 a longitudinal section of a wood floor, showing the tile in cross-sections suspended therefrom. Fig. II is a transverse section of the same floor, also showing the tile supported upon the band-iron strips; and Fig. III is a detail  
50 showing the manner in which the band-iron

strip is supported with screws and separated from coming in contact with the wood joists.

Like letters refer to corresponding parts in all of the figures.

Referring to the drawings, it will be seen 55 that *d* represents wood floor joists, *f* the flooring-boards on top of the same, and *A* the suspended ceiling-tile underneath the joists. Each tile *A* is to be formed with grooved edge, as shown at *g*, to fit securely on the band-iron 60 *b*, thus giving an equal bearing on each side the length of the tile. The band-iron strips *b* are to be set either parallel or at right angles with the joists *d*, as may be most convenient. Each strip *b* is to be punched at regular inter- 65 vals corresponding with the distances between centers of the floor-joists, and is to be supported by screws *s*, which pass through the holes in band-iron *b*, and then through the separator *c* into the joists *d*. The separator *c*, being between 70 the lower edge of the joists *d* and the strip *b*, and over and around the screw *s*, acts as a shoulder or base upon which to tighten the screw *s*, and while it secures the band-iron *b* rigidly in position it at the same time can be used as 75 a gage to the workmen applying the ceiling, as it effectually prevents the screw being driven into joists too far—a result of importance to the speedy application of the ceiling-tile. The separator *c* is to be made of iron or other suit- 80 able material, and, enveloping, as it does, the screw *s*, thus leaving an air-space around the same, acts as a protection when excessive fire causes the tile to become hot enough to injure the screw. By the use of the band-iron strips 85 *b*, separated from contact with joists *d* by the separators *c*, danger from the joists igniting, as would be the case were the tile to be set in place directly against the wood, is essentially lessened. The strips being so made that they 90 can be attached either parallel or at right angles with the joists dispenses with the necessity for cross-furring, which is an advantage both in the cost and freedom from the use of surplus combustible material. 95

I am aware that numerous devices have previously been introduced and patented for the purpose of fire-proof ceilings, both in combination with wood and iron floors and roof construction, but do not know of any method 100



by the use of burned clay or other non-combustible material, in combination with the iron supports and separators, accomplishing the results produced by my form of ceiling.

5. Having therefore thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A fire-proof ceiling composed of the tiles A, with grooved edges or ends supported up-  
10 on iron strips *b*, and secured to the floor-joists *d* with screws *s* passing through the separators *c*.

2. The combination of the tile A, band-iron *b*, screw *s*, and separator *c*, whereby the supports for the tile are held rigidly in position, 15 and the entire ceiling suspended without coming in contact with the floor-joists *d*, all as substantially set forth and described.

ERNEST V. JOHNSON.

Witnesses:

C. F. EIKER,  
C. S. FRANCIS.