

No. 845,526.

PATENTED FEB. 26, 1907.

T. E. COLLINS.
FLEXIBLE METALLIC SHUTTER.

APPLICATION FILED MAY 18, 1906.

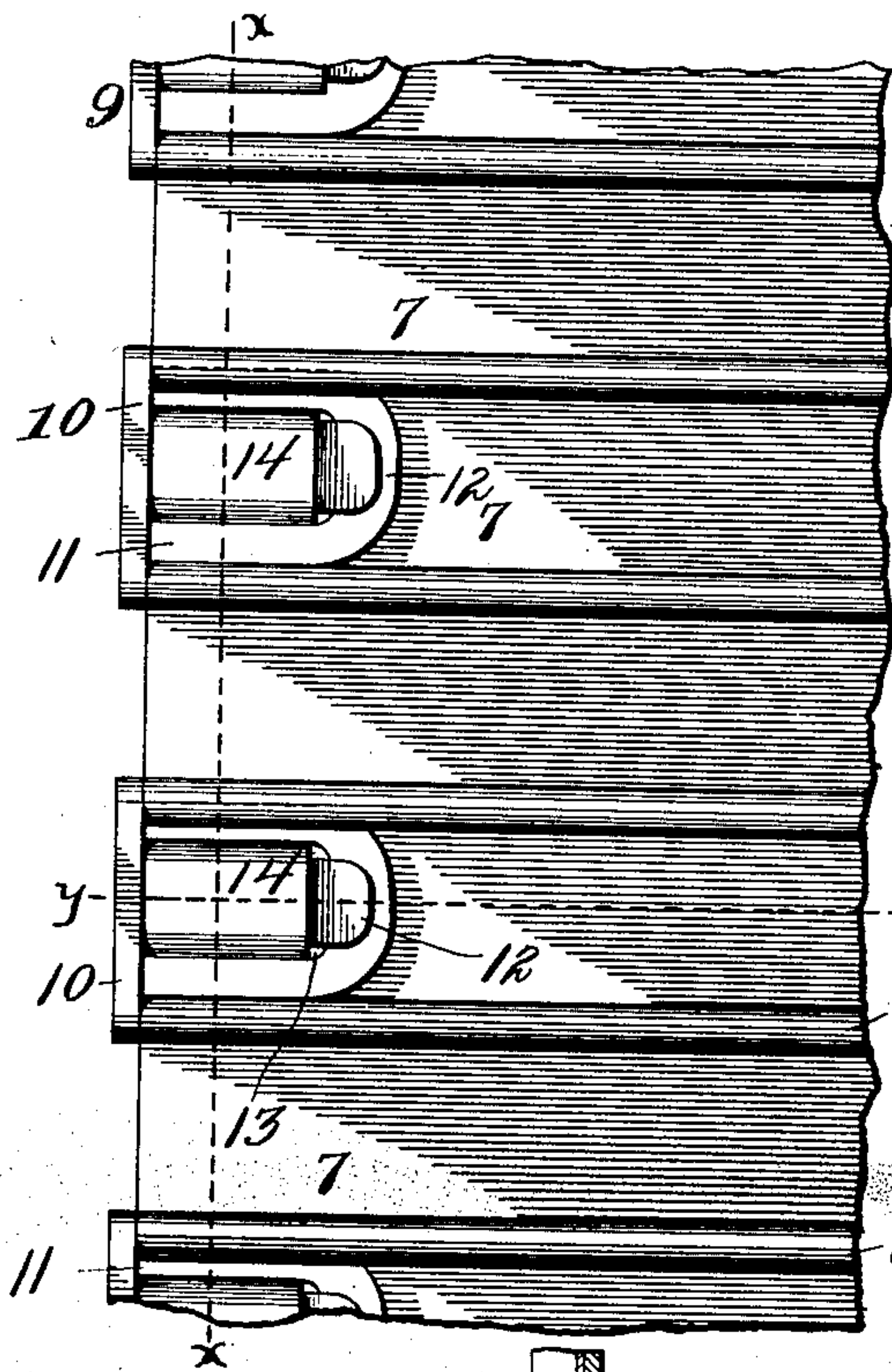


Fig. 1.

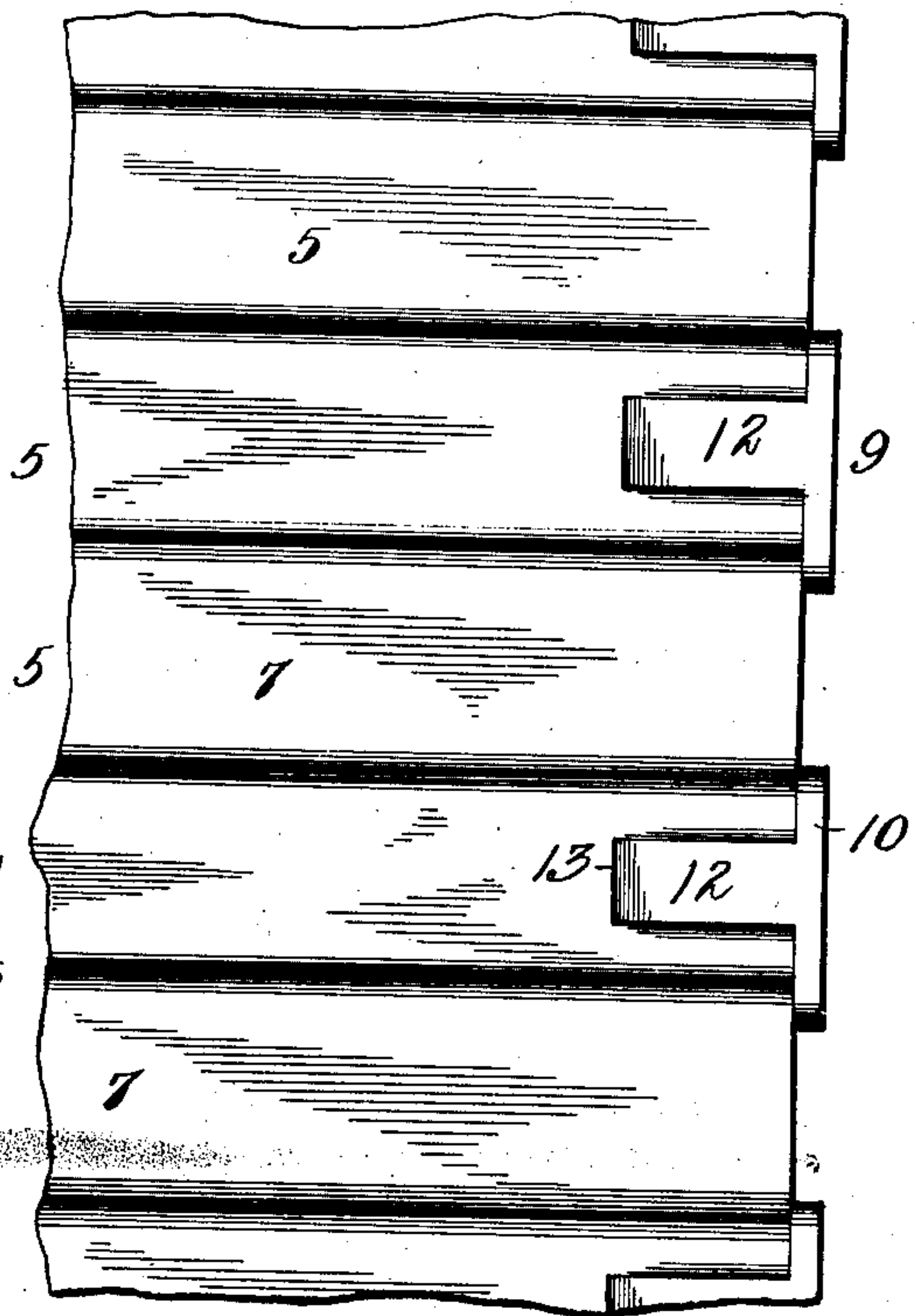


Fig. 2.

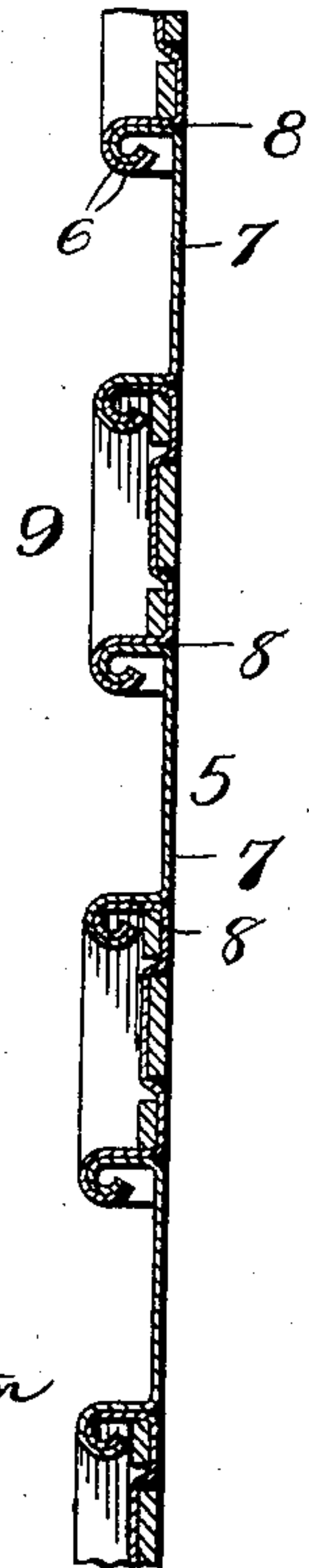


Fig. 3.

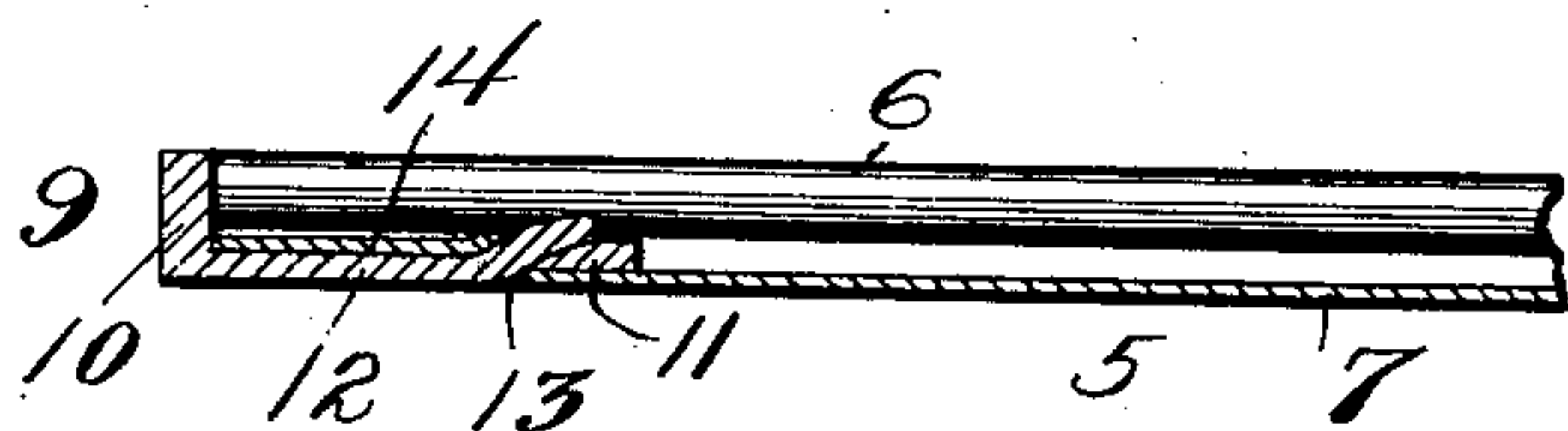


Fig. 4.

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UNITED STATES PATENT OFFICE.

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FLEXIBLE METALLIC SHUTTER.

No. 845,526.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed May 18, 1906. Serial No. 317,425.

To all whom it may concern:

Be it known that I, THOMAS E. COLLINS, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Flexible Metallic Shutters, of which the following is a specification.

My invention relates to flexible metallic shutters, such as are commonly known as "fireproof" shutters.

The object of the invention is the provision of a device of this character which will yield in one direction only and which will present a plane surface upon one side thereof.

A further object of the invention is the provision of a shutter of this character constructed in such manner that there will be no lost motion between the parts.

A further object of the invention is the provision of a shutter of this character formed of a plurality of slats and having reinforcing members secured to the ends of alternate slats, said reinforcing members being secured in position in a novel manner.

Further objects and advantages of the invention will be set forth in the detailed description, which now follows.

In the accompanying drawing, Figure 1 is a rear elevation of a portion of a metallic shutter constructed in accordance with the invention. Fig. 2 is a front elevation of a portion of said shutter. Fig. 3 is a transverse section upon line *x x* of Fig. 1, and Fig. 4 is a horizontal section upon line *y y* of Fig. 1.

Like numerals designate corresponding parts in all of the figures of the drawings.

Referring to the drawings, it will be seen that the shutter comprises a plurality of slats 5, which are substantially U-shaped in cross-section, the edges of the outstanding members of these U-shaped slats being bent, as at 6, in such manner as to engage the like members of adjacent slats. The base portion of the U or the body of the slats proper (indicated by the numeral 7) present a plane vertical face, as is clearly illustrated in Fig. 3. The bent portions 6 of the outstanding members of the slats lie some distance from the plane of the body portions 7 of the slats, by virtue of which construction these outstanding members abutting against each other form a square joint, which will prevent any of the slats from moving outwardly with relation to an adjoining slat, but will permit said slats to move inwardly. By virtue of this construction the shutter may roll upon a

roller in the usual and well-known manner, but is held against buckling outwardly.

In shutters of this character as ordinarily constructed it has been found that when they are grasped near the bottom and forced upward so much lost motion between the shutters must be taken up that the bottom slat moves upwardly a foot or more before the top slat begins to respond to the upward shove. The present construction obviates this difficulty and provides a shutter which may be rolled upon a roller, but is practically unyielding as far as buckling is concerned.

To prevent longitudinal movement of the slats with relation to each other and to provide a wearing-surface at the edges of the shutter, reinforcing members 9 are secured at the ends of alternate slats. These reinforcing members comprise head portions 10, which overlie the ends of the joints formed by the bent members 6 and are formed integral with U-shaped loops 11 and tongues 12. In securing these reinforcing members in position the ends of the slats are pierced, as at 13, to permit the extreme end portion 14 of the slat to be slightly raised. The reinforcing members are then placed in position with the U-shaped loops 11 lying upon the rear face of the slat and the tongues 12 lying upon the front face thereof, the extreme ends of said tongues passing through the opening 13 and engaging over the U-shaped loops 12. By virtue of this construction it is possible to secure these reinforcing members in position without rivets, which is highly desirable, as it has been found that the rivets soon rust out and permit the reinforcing members to become disengaged.

From the foregoing description it will be seen that simple and efficient means are herein provided for accomplishing the objects of the invention; but while the elements herein shown and described are well adapted to serve the purposes for which they are intended it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim is—

1. A metallic shutter comprising a plurality of slats the edges of which are bent into engagement with each other, and reinforcing members secured to the ends of said slats, said reinforcing members comprising a head portion, a body portion which lies upon one

side of the slat and a tongue portion which lies upon the opposite side of the slat, the free end of said tongue passing through an opening formed in the slat and overlying the body portion.

2. A shutter comprising a plurality of metallic slats U-shaped in cross-section, the edges of the said U-shaped slats being bent into hinged connection with each other, and reinforcing members carried by the ends of said slats, said reinforcing members comprising head portions which lie upon the exterior of said slats and overlap the hinged portions thereof, loop portions integral with said head portions lying upon one side of the slats, and tongue portions also formed integral with said head portions and lying upon the opposite side of the slats, the free end of said tongue portions passing through openings formed in the slats and engaging said loop portions.

3. A shutter formed of a plurality of slats comprising plane body portions, outstanding members which lie at right angles to said body portions, said outstanding members carried by the adjacent slats being bent into hinged engagement with each other and said

right-angle portions abutting each other closely, and reinforcing members carried by the ends of the slats.

4. A shutter formed of a plurality of slats comprising plane body portions, outstanding members which lie at right angles to said body portions, said outstanding members carried by the adjacent slats being bent into hinged engagement with each other and said right-angle portions abutting each other closely, and reinforcing members carried by the ends of the slats, said reinforcing members comprising head portions which overlap the joints between the slats, loop portions formed integral with said head portions and lying upon one side of the slats, and tongue portions formed integral with said head portions and lying upon the other side of the slats, the free ends of said tongue portions passing through openings formed in the slats and engaging said loop portions.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS E. COLLINS.

Witnesses:

A. L. PHELPS,
CARL STOUGHTON.