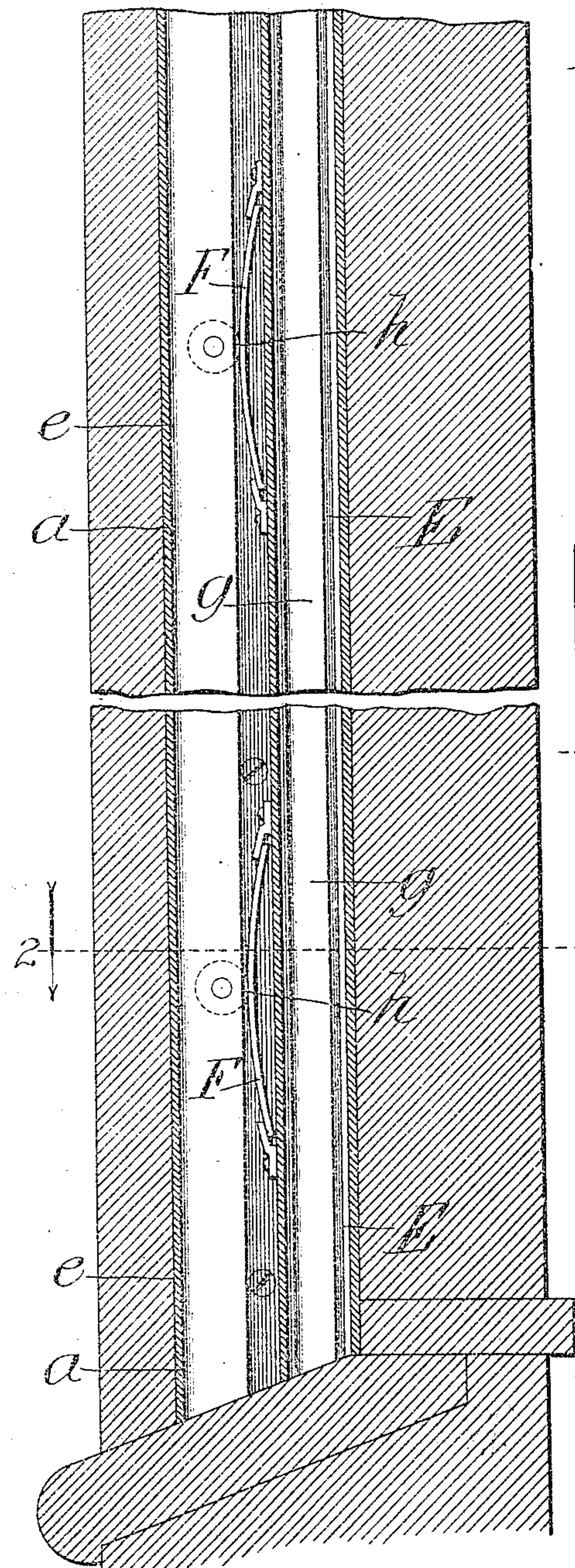


No. 816,580.

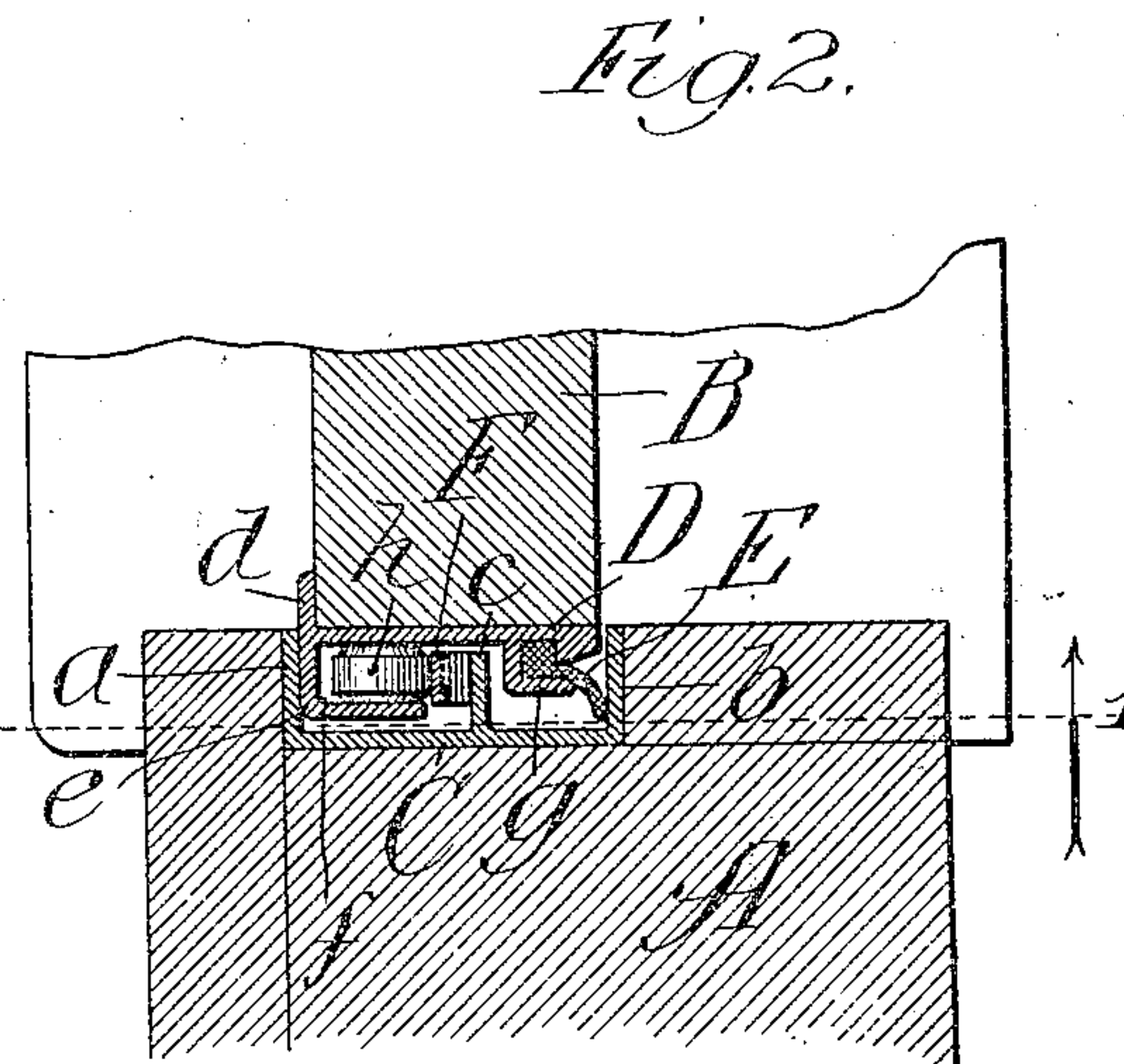
PATENTED APR. 3, 1906.

A. E. HULL.  
WINDOW.

APPLICATION FILED MAR. 31, 1905.



*Fig. 1.*



*Fig. 2.*

Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## WINDOW.

No. 816,580.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed March 31, 1905. Serial No. 253,142.

*To all whom it may concern:*

Be it known that I, ARTHUR E. HULL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Windows, of which the following is a specification.

My invention relates to improvement in windows of the general class employing raising and lowering sashes.

My object is to provide a simple, inexpensive, and durable construction which will render the sashes easy to raise and lower and cause them to be free from objectionable rattling and to be weather and dust proof.

In the drawings, Figure 1 is a broken section taken on line 1 in Fig. 2 through the window-casing at one edge of the sash, and Fig. 2 a broken plan section taken on line 2 in Fig. 1.

Set into the jambs of the window-casing A at each edge of the sash B is a channel-strip C, of suitable metal, formed with the side flanges *a b* and an intermediate longitudinally-extending rib *c*. Fastened upon each vertical edge of the sash B is a strip or shoe D, also of suitable metal, and provided with a flange *d*, overlapping the outer surface of the sash, and a flange *e*, forming a longitudinally-extending socket *f*. The strip or shoe D is also formed with a longitudinally-extending socket *g*, in which is fastened a weather-strip E. Journaled in the socket *f*, near the upper and lower ends of the sash, are antifriction-rollers *h*, and fastened against the rib *c* in position to be engaged by the rollers when the sash is closed are springs E.

My principal object in providing a sash with the metal shoe or strip D sliding in or against a metal jamb-strip C is to overcome the danger of binding of the sash against the jamb, which is a common fault incident to the constructions hitherto employed. The sticking or binding referred to is due to swelling of the sash and contracting of the window-frame under changes in weather conditions. To avoid this annoyance, it has been the common practice to cause the sash to fit quite loosely in the jambs; but this mode of construction, while avoiding sticking, permits the sashes to rattle under the force of the wind and to admit dust and draft. The use of weather-strips against the outer or inner sides of a sash to exclude drafts and the pas-

sage of dust is unsatisfactory in many cases, because to be effective they must press firmly against the sash, thereby tending to bind the latter and to open the joints between bearing-surfaces. In my improved construction the flanges *d e* at each edge of the sash present a smooth surface which slides against the smooth inner surface of the flange *a*. The weather-strip E at each edge of the sash bears against the smooth inner surface of the adjacent flange *b* when provided, and this construction permits the use of comparatively wide flexible weather-strips which will last for many years without wearing down to the extent of rendering them useless. Weather-strips E of rubber, felt, or the like soft material may be sufficiently resilient to press the sash against the surfaces *a* with such force as to prevent material rattling of the sash when it is opened, while the engagement of the bearings or rollers *h* with the springs F will obviate all danger of rattling when the sash is closed.

The construction shown and described is adapted more especially for counterbalanced windows, though when employed in windows the sashes of which are not counterbalanced any suitable mechanism may be used in connection therewith to hold the sash when opened against closing.

The flange *b* of the jamb-strip may, if desired, be dispensed with and the weather-strip be caused to slide against the base-surface of the channel-strip. The springs F and the bearings or rollers *h* may be mounted in any suitable manner to operate as described. Should the sash B be constructed of metal, the shoes D may be an integral part thereof.

What I claim as new, and desire to secure by Letters Patent, is—

In a window, the combination of a raising and lowering sash provided on its opposite vertical edges with longitudinally-extending metal shoes, longitudinally-extending metal jamb-strips on the window-casing against which the said shoes fit and slide, and cooperating bearings and springs between the shoes and jamb-strips engaging as the sash is closed to press the sash against the jamb, substantially as and for the purpose set forth.

ARTHUR E. HULL.

In presence of—

J. H. LANDES,  
E. P. RICH.