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PATENTED JAN. 29, 1907.

W. J. ROUSSEL.  
LOOSE LEAF BINDER.  
APPLICATION FILED MAR. 31, 1906.

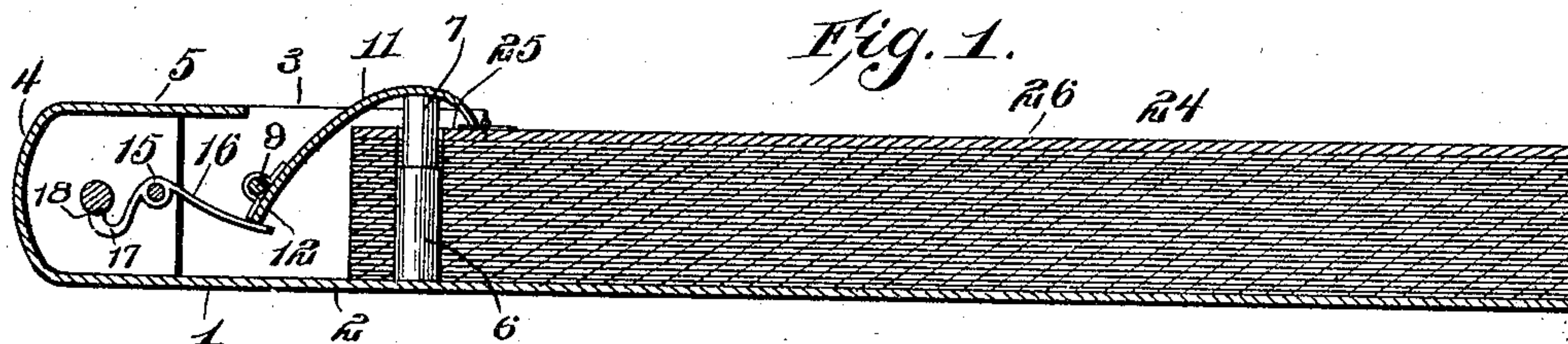


Fig. 1.

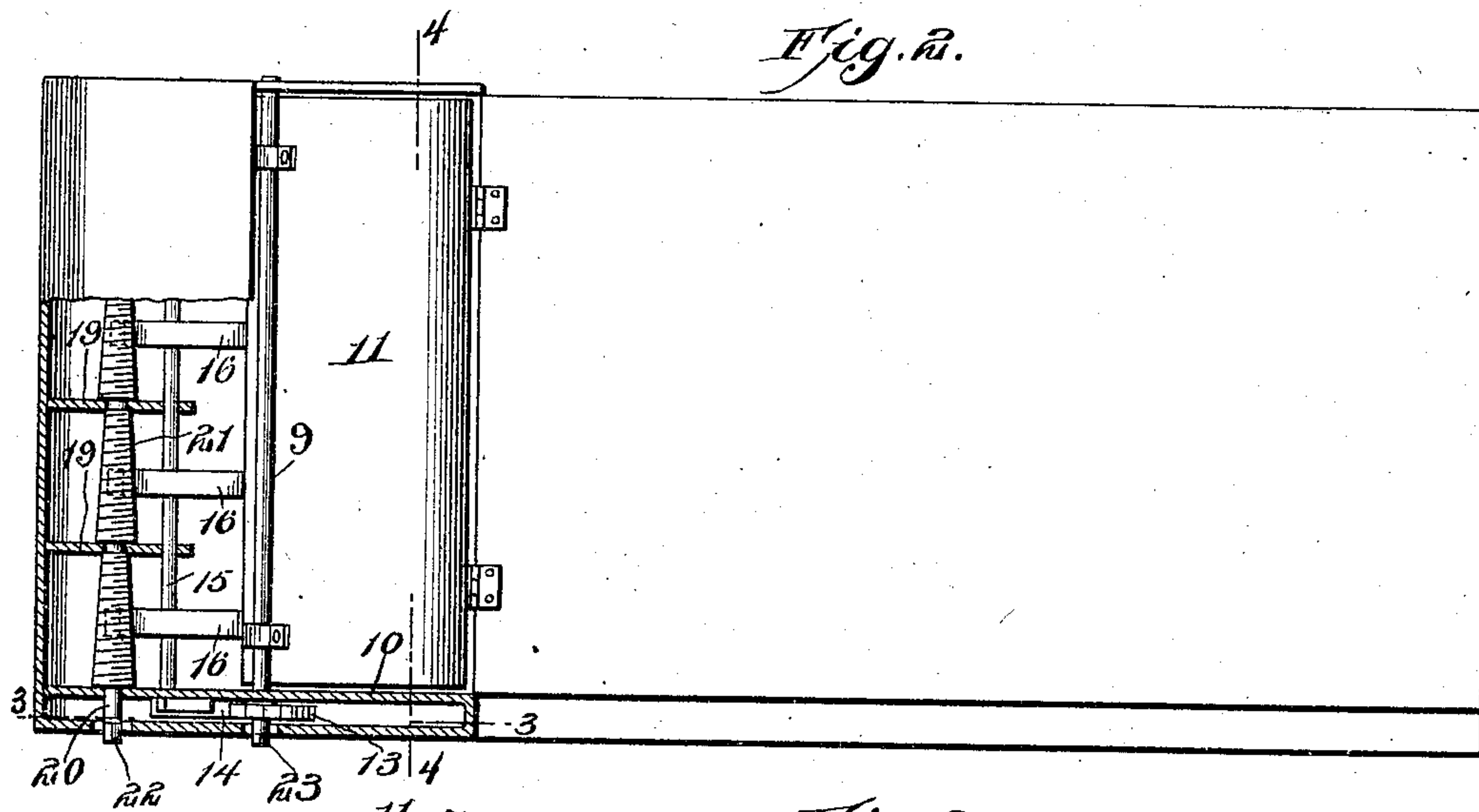


Fig. 2.

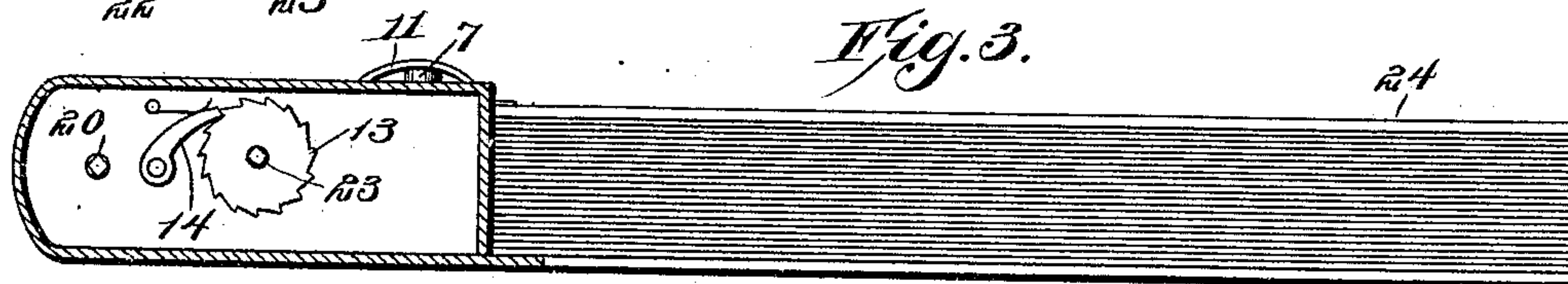


Fig. 3.

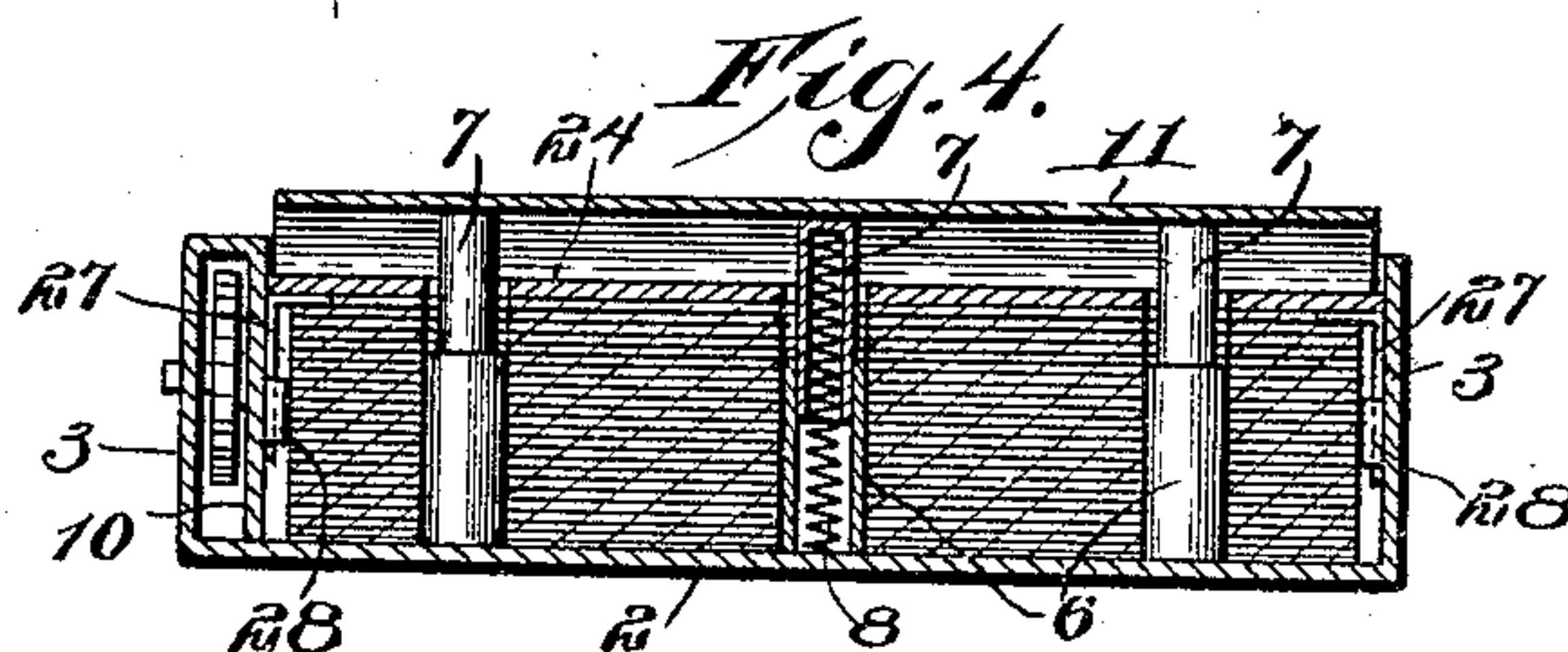


Fig. 4.

Witnesses

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# UNITED STATES PATENT OFFICE.

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## LOOSE-LEAF BINDER.

No. 842,708.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed March 31, 1906. Serial No. 309,190.

*To all whom it may concern:*

Be it known that I, WILLIS J. ROUSSEL, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

The invention relates to an improvement in loose-leaf binders, particularly of the type designed to permit the ready insertion or removal of any particular leaf and constructed to accommodate and secure in compact form any number of leaves.

The main object of the present invention is the production of means whereby a plurality of leaves may be readily and quickly bound in a practical book form, the construction providing for the securing of the leaves together in a manner to permit the ready use of the whole exactly as if permanently bound, while at the same time permitting the ready insertion or removal of any particular leaf or leaves.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal sectional view of a loose-leaf binder constructed in accordance with my invention. Fig. 2 is a plan of the same, a portion of the back-section being broken away. Fig. 3 is a vertical section on line 3 3 of Fig. 2. Fig. 4 is a transverse section on line 4 4 of Fig. 2.

Referring particularly to the drawings, my improved loose-leaf binder comprises a back-section 1, shaped in outline to represent a book and including a bottom 2, side walls 3, a forward wall 4, and a top flange 5, integral with the forward wall and extending rearwardly therefrom for a comparatively short distance in spaced parallel relation to the bottom 2. The walls of the back member, as well as the corners thereof, may be in any desired configuration to represent a book or similar article, the wall 4 being preferably convex in section and the corners of the member slightly rounded.

To the bottom 2, a short distance in rear of the rear edge of the flange 5, are secured what I term "leaf-retainers," comprising cylindrical posts 6, secured to the bottom 2 and open at their upper ends to telescopically receive extension-posts 7, which are closed at top and open at bottom. A coil-spring 8 is housed within each post 6, the upper end

thereof projecting within the extension-posts and bearing against the upper end thereof. The springs 8 are tensioned to normally maintain the extension-posts at their upward limit of movement for a purpose which will later appear.

A shaft 9 is mounted for revolution in the side walls 3 of the back member, being preferably positioned in vertical alinement with the rear edge of the flange 5 and about centrally of the height of the side walls 3. A partition 10 is arranged in parallel spaced relation to one of the side walls, extending from the forward wall 4 to and beyond the plane of the leaf-retainers, forming with said side wall a chamber for the reception of the operating mechanism to be later described.

Fixed upon the shaft 9 is what I term a "shutter" 11, comprising a curved strip of metal coextensive in width with the distance between the one side wall 3 and the partition 10, the rear edge of said shutter being curved to rest directly upon the upper ends of the extension-posts 7 with its free rear edge projecting below the plane of said posts. The forward edge of the shutter projects below the shaft 9 in the form of the extension 12 for a purpose hereinafter described. A ratchet 13 is fixed on the shaft 9 within the chamber formed by the partition 10, a spring-pressed pawl 14 being mounted within the chamber and arranged to cooperate with the ratchet 13 to secure the shaft 9 against movement in one direction. Forward of the shaft 9 and below the flange 5 is arranged a shaft 15, revolvably supported in one side wall 3 of the back member and in the partition 10. Upon this shaft is mounted for independent movement a series of spring-retainers 16, the rear ends of which project beneath and in contact with the free edge of the extension 12 of the shutter, while the forward ends are bent in approximately U shape to provide a terminal 17, formed upon its upper surface with a series of serrations or threads 18. Projecting from the forward wall 4 of the back member is a series of vertically-arranged partitions 19, dividing the space between the flange 5 and the bottom 2 into a series of chambers, as clearly shown in Fig. 2. An operating-shaft 20 is mounted in the side walls 3 of the back member, said shaft extending through and having bearing in each of the partitions 19. The shaft 20 is provided or formed between one of the end walls 3 and the adjacent partition and between each pair



of partitions with a cone-surface 21, exteriorly threaded and arranged for operative engagement with the threads 18 on the respective forward extensions of the springs 16, it being understood that the springs are equal in number to the chambers formed by the partitions and are arranged, respectively, one in each chamber. One end of the shaft 20 is squared at 22 for the reception of a key, and the terminal of shaft 9 is reduced and rounded at 23, the side wall of the back member adjacent the end of the shaft 9 being formed with a suitable opening to permit the insertion of a key for support upon the rounded end of said shaft. The key-bit is to be so formed as to engage the pawl 14 in the operation of the key and disengage the same from the ratchet 13, thereby permitting the shutter 11 to be raised, as will be obvious.

Instead of the key-opening adjacent the end of the shaft it may be found desirable to provide an opening in the rear wall 4 and arrange a Yale or other lock in the partition 10, so as to require the key to operate the lock previous to releasing the pawl, thereby guarding against manipulation of the pawl by other means than a proper key.

A cover member 24 is designed for co-operation with the back member, comprising a section 25, suitably formed to engage the leaf-retainers, and a movable section 26, having hinged connection with the section 25. By preference the section 25 of the cover member and the relative projection of the shutter 11 in rear of the leaf-retainers is such that the free rear edge of said shutter bears upon the section 25 slightly forward of its rear edge, so that the movable section 26 of the cover is free of the influence of the shutter and may be readily swung up on its hinged connection when access to the binder-leaves is desired. Guides 27 depend from the side edges of the cover member, preferably coöperating with eye members 28, secured on the inner side of the walls 3 of the back member, so that the section 26 of the cover member may be accurately guided into closing position.

In use, assuming the shutter turned with the shaft 9 so that its rear edge is in an elevated position, the leaves desired to be bound are caused to engage the leaf-retainers in proper relative order, after which the cover member is also placed in position on the leaf-retainers. The shutter is now turned down upon said retainers and the shaft 20 revolved to move the springs 15 longitudinally of said shaft through engagement with the threaded section 21 thereof. As these sections are cone-shaped, the movement of the springs toward the partition 10, for example, causes a downward pressure to be exerted upon the forward ends of said springs, with the result to force the free or rear edge of the shutter into close contact

with the cover member, binding the same upon the leaf-retainers. This movement of the shutter causes a revolution of the ratchet 13 until the desired position of the shutter is reached, when the pawl 14 will lock the shaft, and thereby the shutter, against reverse movement. The leaves are thus effectively bound, but may be inspected or otherwise used when desired by simply elevating the section 26 of the cover member as in an ordinary book. The shutter 11 being locked in binding position will be maintained in such position against unauthorized operation until the insertion of a key properly shaped to disengage the pawl and operating the shaft 9 in reverse direction.

The binder is simple in construction and provides for the ready and effective use with any number of sheets, the telescopic feature of the leaf-retainers providing for an extended use of the binder. Furthermore, the adjustability of the pressure of the shutter provides for the accommodation of a greater number of leaves than would be otherwise possible, as said shutter may be caused to bear upon the leaves with the desired pressure to hold said leaves upon the leaf-retainers, the pressure of course being varied at will through the operation of the shaft 20.

Having thus described the invention, what is claimed as new is—

1. A loose-leaf binder comprising a back member, leaf-retaining means carried thereby, a spring-pressed shutter adapted to engage said leaf-retaining means and bear upon the leaves, and means for varying the pressure of said shutter.

2. A loose-leaf binder comprising a back member, leaf-retaining means carried thereby, a spring-pressed shutter adapted to engage said leaf-retaining means and bear upon the leaves, and means for locking the shutter in applied position.

3. A loose-leaf binder comprising a back member, leaf-retaining means comprising a series of telescopically-arranged posts, a shutter movably supported by the back member and adapted to engage said posts and bear upon the leaves, springs for maintaining the shutter in applied position, and means for adjusting the tension of said springs.

4. A loose-leaf binder comprising a back member, leaf-retaining means comprising a series of telescopically-arranged posts, a shutter movably supported by the back member and adapted to engage said posts and bear upon the leaves, springs for maintaining the shutter in applied position, a shaft supported in rear of said springs, and a series of cone-surfaces carried by the shaft and arranged for threaded engagement with the springs.

5. A loose-leaf binder comprising a back member, leaf-retaining means carried thereby, a spring-pressed shutter adapted to en-



gage said leaf-retaining means and bear upon the leaves, means for varying the pressure of said shutter, and a cover member comprising hinged sections arranged for coöperation with the leaf-retaining means.

5 6. A loose-leaf binder comprising a back member, leaf-retaining means carried thereby, a spring-pressed shutter adapted to engage said leaf-retaining means and operate  
10 upon the leaves, means for locking the shutter in applied position, and means for releasing the shutter to permit its manual operation.

15 7. A loose-leaf binder comprising a back member, leaf-retaining means carried thereby, a spring-pressed shutter adapted to en-

gage said leaf-retaining means and bear upon the leaves, and manually-operable means for varying the pressure of said shutter.

8. A loose-leaf binder comprising a back 20 member, leaf-retaining means carried thereby, a shutter adapted to engage said leaf-retaining means and bear upon the leaves, a plurality of springs arranged to bear upon said shutter, and means for simultaneously 25 varying the tensions of said springs.

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

WILLIS J. ROUSSEL.

Witnesses:

JOHN ALSINA,

MORRIS H. PHILLIPS.