

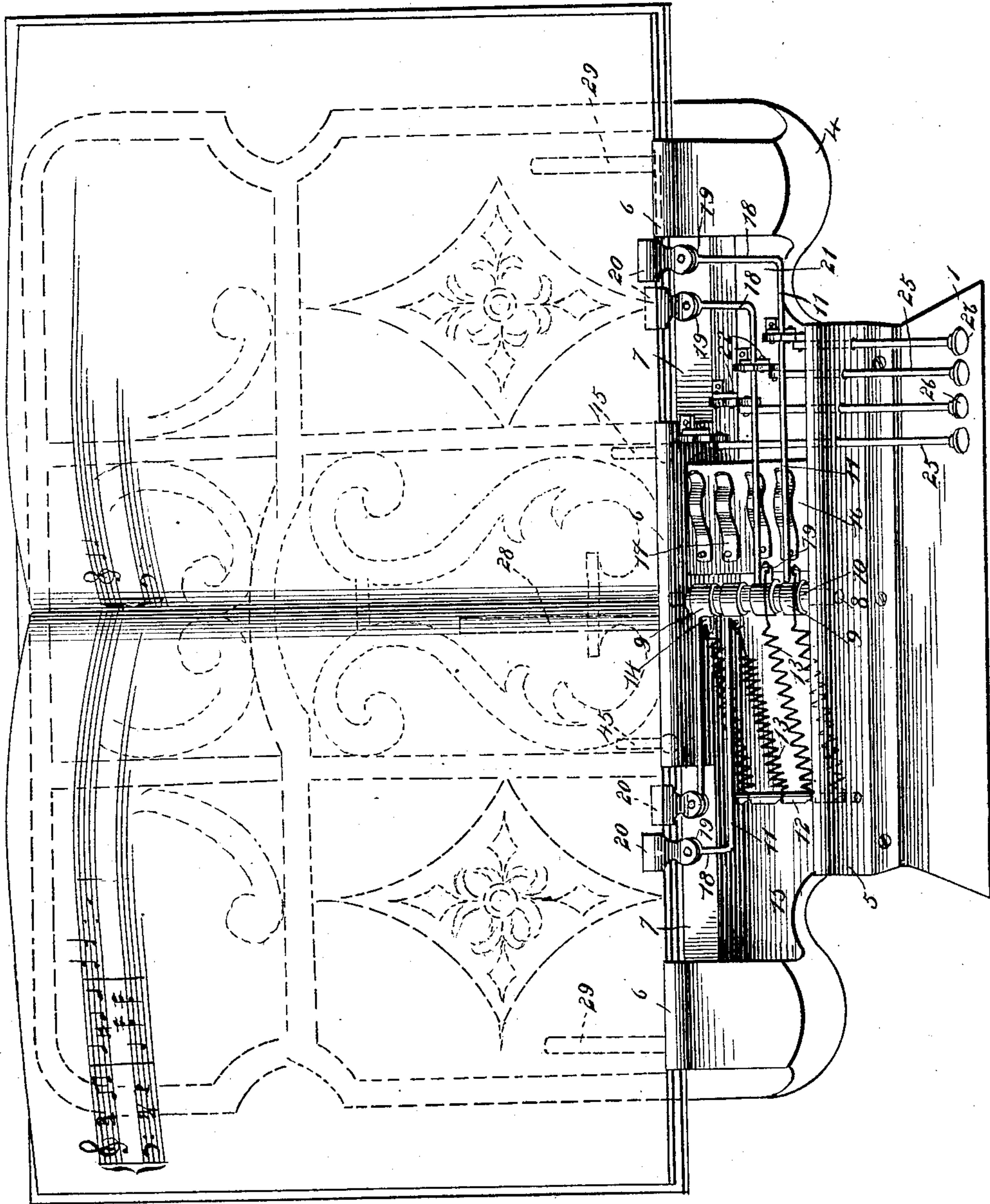
(No Model.)

2 Sheets—Sheet 1.

W. H. FRYE.
MUSIC LEAF TURNER.

No. 559,375.

Patented May 5, 1896.



WITNESSES:

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Fig. 1.

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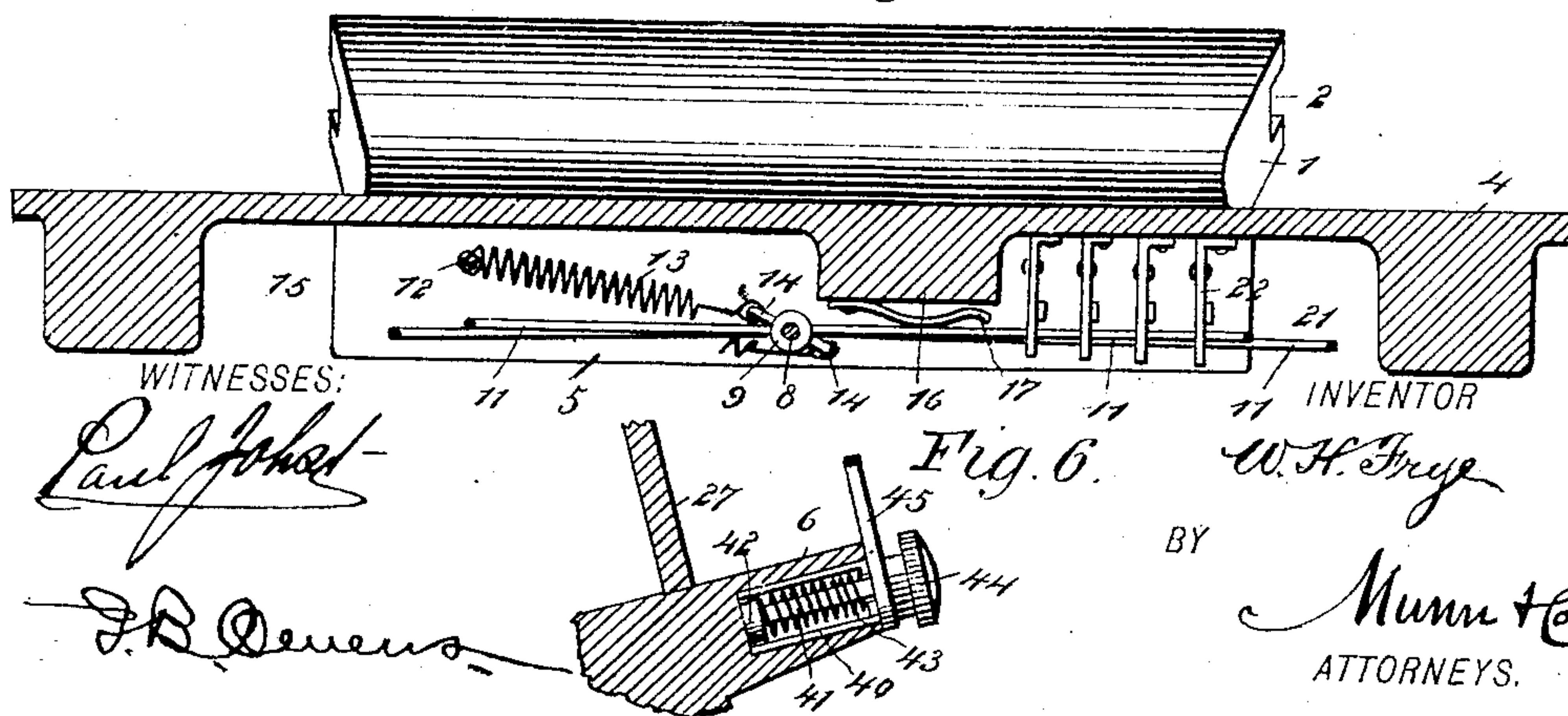
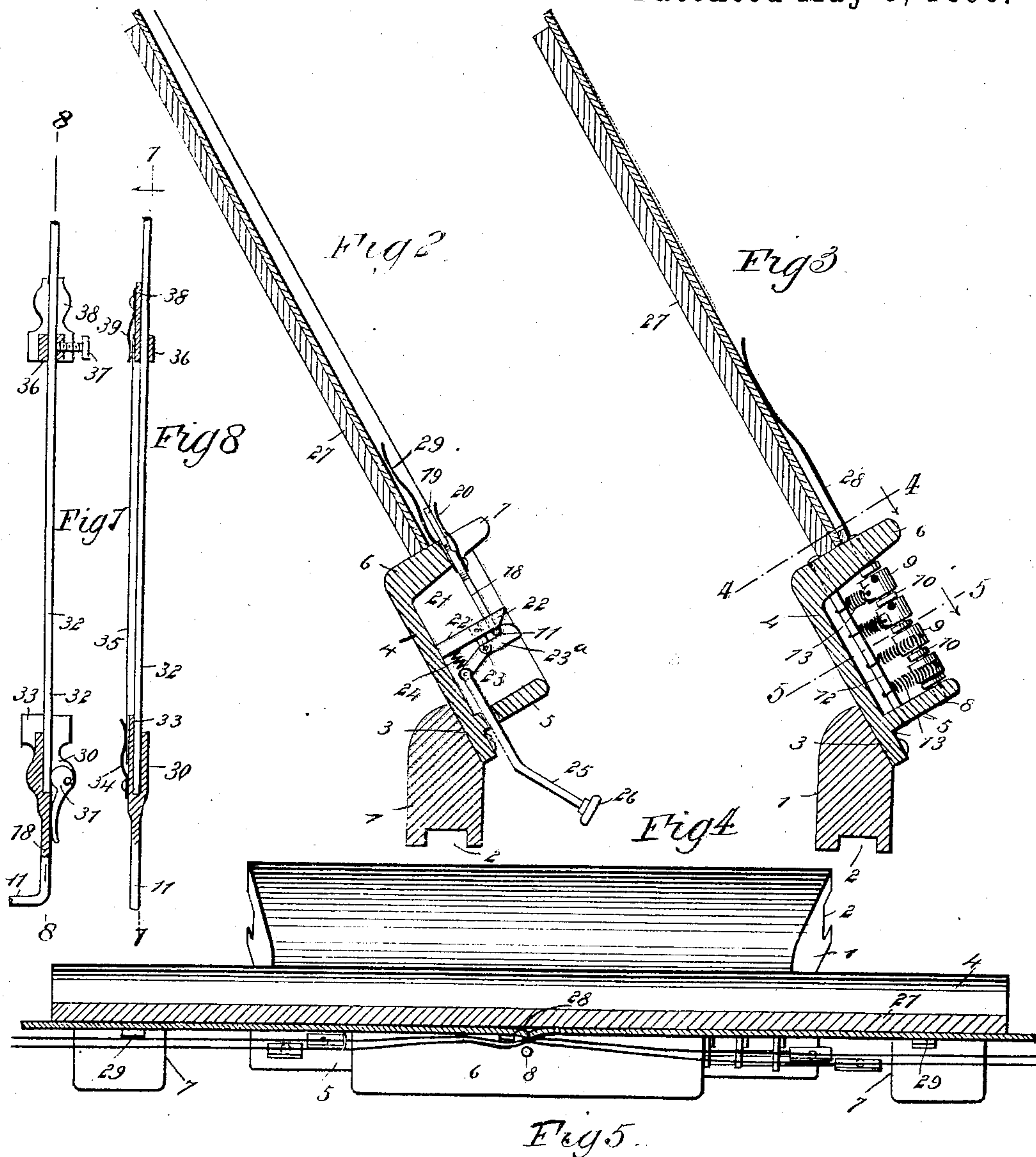
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

WILLIAM H. FRYE, OF MOUNTAIN GROVE, MISSOURI.

MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 559,375, dated May 5, 1896.

Application filed June 8, 1895. Serial No. 552,104. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. FRYE, of Mountain Grove, in the county of Wright and State of Missouri, have invented a new and
5 Improved Music-Leaf Turner, of which the following is a full, clear, and exact description.

This invention relates to an improvement in that class of music-leaf turners wherein a series of arms are mounted on a suitable frame
10 with the capacity to swing from one side to the other and are provided with means for connecting with them the music-sheets, so that the said sheets will be turned by the swinging of the arms.

15 The object of this invention is to improve the general construction of prior devices, and also to provide means for throwing the arms, which will consist in a double-spring device, one of the springs being arranged to assist
20 the other in the throwing operation.

Still further it is an object of my invention to provide superior means for retaining the arms and for releasing them, so that they may have that movement which is characteristic
25 of them.

These several objects are attained by the mechanism illustrated in the accompanying drawings, all of which will be described hereinafter and finally embodied in the claims.

30 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 represents a front elevation of a
35 music-leaf turner constructed after the manner of my invention and showing a music-book thereon. Fig. 2 is a vertical section of the device. Fig. 3 is a similar view taken on a different line. Fig. 4 is a section on the line
40 4 4 of Fig. 3. Fig. 5 is a section on the line 5 5 of Fig. 3. Fig. 6 is a detail section illustrating a supplemental device. Fig. 7 is a sectional view on the line 7 7 of Fig. 8 and illustrating a modification of my invention, and
45 Fig. 8 is a sectional view on the line 8 8 of Fig. 7.

The reference-numeral 1 indicates the base of my improved device, and this base portion is to be formed of any suitable material and
50 provided at its under side with a longitudinal groove 2, which is adapted to receive the

usual music-supporting ledge or cleat of a piano and to sustain the base and attached parts thereon. The upper front side of the base 1 is beveled, as shown at 3, and has bolted
55 or otherwise rigidly secured thereto the section 4 of the frame. This section 4 is of a greater horizontal extent than that of the base 1 and has the part which is connected to the base narrowed and extended forwardly, as
60 shown in Fig. 1. Formed integral with this forwardly-extended part of the section 4 is an upwardly and forwardly extending ledge 5. This ledge 5 is illustrated best in Figs. 2 and
65 3 and extends perpendicular to the section 4, its purpose being to serve as a bearing-place for various shafts and rods. The upper edge of the section 4 is formed with a ledge 6, also perpendicular to the section and extending
70 substantially parallel with the ledge 5. This ledge 6 is much longer than the ledge 5, it being extended the entire length of the section 4, and is broken away at the two points 7 for a purpose which will be hereinafter explained.

8 indicates a shaft which is rigidly mounted
75 in the ledges 5 and 6 and which extends parallel with the section 4 and at the middle thereof. Revolvably mounted on this shaft are the four collars 9, which have interposed between them washers 10, whereby they are
80 made capable of easy movement, and they have fixed thereto the arms 11. These arms are one for each of the collars and are capable of swinging therewith, so as to lie on each
85 side of the shaft.

Fixed in the ledges 5 and 6 and to the left
of the shaft 8 and below the plane thereof is a second shaft 12, which is extended parallel with the shaft 8 and which has connected
90 thereto the four spiral springs 13. These springs 13 are respectively connected to the arms or offsets 14 of the respective collars 9 and the said arms are projected radially from the collars at an angle of about forty-five
95 degrees from the plane occupied by the respective arms 11. The springs 13 are of the retractile class and thereby exercise a tendency to draw the arms 14 toward the shaft 12. Formed in the section 4 is a cavity or depression 15, in which the shaft 12 is located and
100 which is provided so that the shaft may be arranged below the plane of the shaft 8, to

the end that the springs 13 may exercise their proper tendency on their respective collars 9. The cavity 15 is continued but a slight degree to the right of the shaft 8, so as to form the part 16 of the section 4, and to this part the leaf-springs 17 are affixed. The springs 17 are one for each of the arms 11 and are arranged to bear against the said arms when the same are moved to the right of the shaft 8, as is shown in Fig. 1 of the drawings. Fig. 5 also illustrates how the springs 17 engage with the arms 11.

It will be observed that the tendency of the retractile springs 13 is to draw the arms 14 toward the shaft 12, and that when the arms 11 are moved to the right of the shaft, as shown in Fig. 5, the arms 14 will have passed the center line, and the straight extensions of the springs will bind them on the shaft 8 and thus prevent the free throw of the arms toward the left side. It is therefore the purpose of the springs 17 to give the arms an initial movement and to move them past the dead-center in which they are when to the right of the shaft 8. After the arms have been moved past the shaft 8 the springs 13 follow up the operation of the springs 17 and complete the throw of the arms.

The free ends of the arms 11 are bent inwardly to form portions 18, and these parts 18 have their inner extremities transversely aligned and provided with plates 19, with which the spring-leaves 20 cooperate. The springs 20 bear upon the plates 19 and have their free ends bent upwardly to form a shoe-like portion which facilitates the passage of the leaf between the spring and plate. By these means the sheets of music may be connected to the arms 11, as illustrated in Fig. 1. It will also be seen that the extreme inner rod of the series 11 has not its end bent to form a portion 18, but has the plate 19 and spring 20 connected directly thereto, it being unnecessary to bend the arm for the obvious reason that its body is far enough inward to permit the direct attachment of the spring.

Formed in the section 4 and immediately to the right of the part 16 thereof is a cavity 21, which is very similar to the cavity 15 and which has therein the devices for retaining the arms or rods 11 to the right of the shaft 8. These devices are one for each rod or arm, and each consists of a post 22 extending perpendicularly from the bottom of the cavity 21 and provided with an inclined upper face, such as is shown in Fig. 2 of the drawings.

23 indicates a transversely-extending arm fixed to the middle of the post 22 and to which the catch 23^a is pivoted. The catch 23^a is provided at its outer end with a hook and an inclined face, which matches with the inclined face on the post and forms a substantially V-shaped recess, into which the rods 11 may pass directly prior to the operation of securing them.

24 indicates a spiral spring, which is con-

nected to the post and to the catch 23^a and which expands to insure the engagement of the outer end of the catch with the post 22. Thus it will be seen that when one of the rods 11 swings into the V-shaped space at the ends of the catch and post the catch will be pushed aside to permit the rod to be received by its hook portion, as illustrated in Fig. 2 of the drawings.

25 indicates a series of operating-rods, which are respectively mounted in the cleat 5, so as to be capable of longitudinal movement therein, and which have their inner ends pivotally connected to the inner end of the catch 23^a, whereby as the rods are pushed inward the catch will be moved against the tendency of the spring 24 and the rods 11 released.

The lower ends of the rods 25 are provided with buttons 26, whereby they may be operated, all of which will be understood.

Fixed to the upper side or edge of the section 4 is the music-supporting portion 27, which projects in the same direction as the section 4 projects, and which is adapted to have the music rested thereon, as illustrated in the drawings.

28 indicates a leaf-spring, which is fixed to the rear side of the cleat 6 and thence projects along the middle of the music-supporting part 27, the purpose of the same being to hold the music down, as best illustrated in Fig. 4.

When the music used has a cover, such as is illustrated in Fig. 4, the spring 28 should be made to lie upon the cover and under the leaves. When, however, the music is in the form of unbound and loose sheets, the spring 28 should be made to lie over the leaves and just to the left of the fold at the middle thereof, whereby the leaves are held in place and at the same time are permitted to swing in the turning operation.

Two additional springs 29 are provided, and these are much shorter than the spring 28 and are respectively secured to the ends of the cleat 6. These springs rest upon the support 27 and are employed to assist the spring 28 in its function of holding the back of the music in place.

In the use of the invention the music book or sheets are placed upon the support 27 and the spring 28 is made to engage the cover, as illustrated in Figs. 1 and 4. The springs 29 are next placed in engagement with the cover, so that the book will be held securely on the support. The springs 28 and 29 are so arranged that the book will not be enabled to lie directly in engagement with the cleat 6, but will be raised just a little above the same, to the end that the leaves will not bind against the cleat as they are turned. This is accomplished by interposing a suitable block between the bases of the spring 28 and the support 27. The arms or rods 11 are now moved to the right of the shaft 8, and the leaves of the music are placed between the respective springs 20 and the plates 19, so

that each arm 11 will have connected to it one of the leaves of music. It is essential to this arrangement that the connection with the leaves be such that each arm, when raised by the springs 13 and 17, will be connected to the top sheet or leaf of the music, so that it will be free to turn said sheet. As the arms or rods 11 are moved to the right of the shaft 8 they should be respectively connected to the retaining devices in the cavity 21. The device will now be ready for use, and as the pages of music are read the rods 25 should be successively pushed in, so as to disengage the catch 23 and post 22, and thereby permit the springs 17 and 13 to operate and swing the rods or arms to the left of the shaft 8, as illustrated, with two arms in the first figure. Thus the device is used until all of the pages have been turned over, as is understood.

Figs. 7 and 8 illustrate a device which facilitates the turning of loose leaf-music, or that in which two or three sheets are placed together, but are not bound or sewed. This device consists in forming at the ends of the transversely-extending portions 18 of the arms 11 the enlarged sockets 30. These sockets are one for each of the parts 18, and have an open side in which an eccentric or cam lever 31 is revolubly mounted, so that the said lever may be operated to bind against the detachable rod-sections 32, whereby said sections 32 are rigidly connected to the rods 11 and alined with the extensions 18. 33 indicates a rigid plate similar to the plates 19, and this plate has the spring 34 cooperating with it to hold the music-leaf in place, the said leaf being designated by the integer 35 in Fig. 8. The outer end of the arm or rod 32 is provided with a collar 36, in which a set-screw 37 operates, and this collar is movable longitudinally on the rod 32, and is held securely by means of the set-screw 37.

Formed integral or otherwise rigidly secured to the upper side of the collar 36 is a rigid plate 38, which carries a leaf-spring 39, the said leaf-spring being fixed to its upper side and bearing against the lower portion of the plate, so as to secure the music-sheet to the collar.

In operation the leaf of music is placed over the rod 32, and the springs 34 and 39 are connected with its lower and upper edges, respectively, so that the rod may be passed under the sheet and connected thereto at each end. This will effect a far more secure connection with the page, and make it possible to turn the same bodily and without exerting any strain upon the creased portion or fold at the middle of the sheet. The rod 32 is made removable, so that, if desired, it may not be used, and the spring 34 and plate 33 used in the same manner as the spring 20 and plate 19 are now used.

Fig. 6 is an illustration of an attachment for the device which is provided when it is desired to hold open thereon a book of any

class, and this device consists in a tube 40, sunk within a circular or cylindrical cavity in the cleat 6 and having movable longitudinally therein a rod 41, which has at its inner end a head 42, receiving a spiral spring 43. The outer end of the spring 43 engages with the closed end of the tube 40, and, being of the expansible class, operates to hold the rod 41 within the tube. The outer end of the rod 41 is projected beyond the tube and provided with a head or thumb-piece 44 and a transversely-projected arm 45. This arm 45 extends perpendicularly from the side of the cleat 6 and projects over the support 27, whereby it is possible to hold a book open on the support, as will be understood. The rod 41 and its attached parts may be moved axially in the tube 40, so as to swing the arm 45 from over the rest 27 and release the book which is held thereby. Two of these retaining devices are provided for my device and are arranged one on each side of the shaft 8 and about midway the length between said shaft and the respective ends of the section 4. They are not useful in the operation of turning of music-leaves and are shown in dotted lines in Fig. 1, it being understood, however, that they are only used when it is desired to removably secure a book.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a frame-section having two cavities with a raised portion between them, of a shaft extending across the inner end of one cavity, a series of arms pivoted to the shaft, a clip for each arm, a retractile spring connected to each arm and having their inner ends secured at the bottom of the adjacent cavity, a leaf-spring for each arm and fixed to the raised portion between the cavities, and releasable detaining devices on the arms and located in the cavity which has not the retractile springs, substantially as described.

2. The combination with a frame-section having two recesses therein with a raised part between them, a shaft fixed on the frame-section, an arm pivoted to the shaft, a clip on the arm, a retractile spring for the arm, the retractile spring being fixed in the bottom of one cavity, a leaf-spring fixed to the raised part of the frame-section, said springs bearing against the arm, and a releasable detaining device for the arm and seated within the cavity which has not the spring, substantially as described.

3. In a music-leaf turner, a frame-section having two parallel and transverse cleats thereon and having two cavities between the cleats separated by a raised portion, a shaft fixed in the two cleats and extending across from one to the other, an arm pivoted to the shaft, a spring connected to the arm and secured in the bottom of one cavity, a leaf-spring fixed to the raised portion and bearing against the arm, and a releasable detaining

device for the arm and seated within the remaining cavity, substantially as described.

4. The combination with a frame-section having two recesses with a raised part between
5 them, of a shaft, an arm mounted on said shaft, a clip carried by the arm, a spring connected to the arm and having one end fixed

in one recess, and a releasable detaining device located in the remaining recess, substantially as described.

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Witnesses:

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