

I. F. GILMORE.

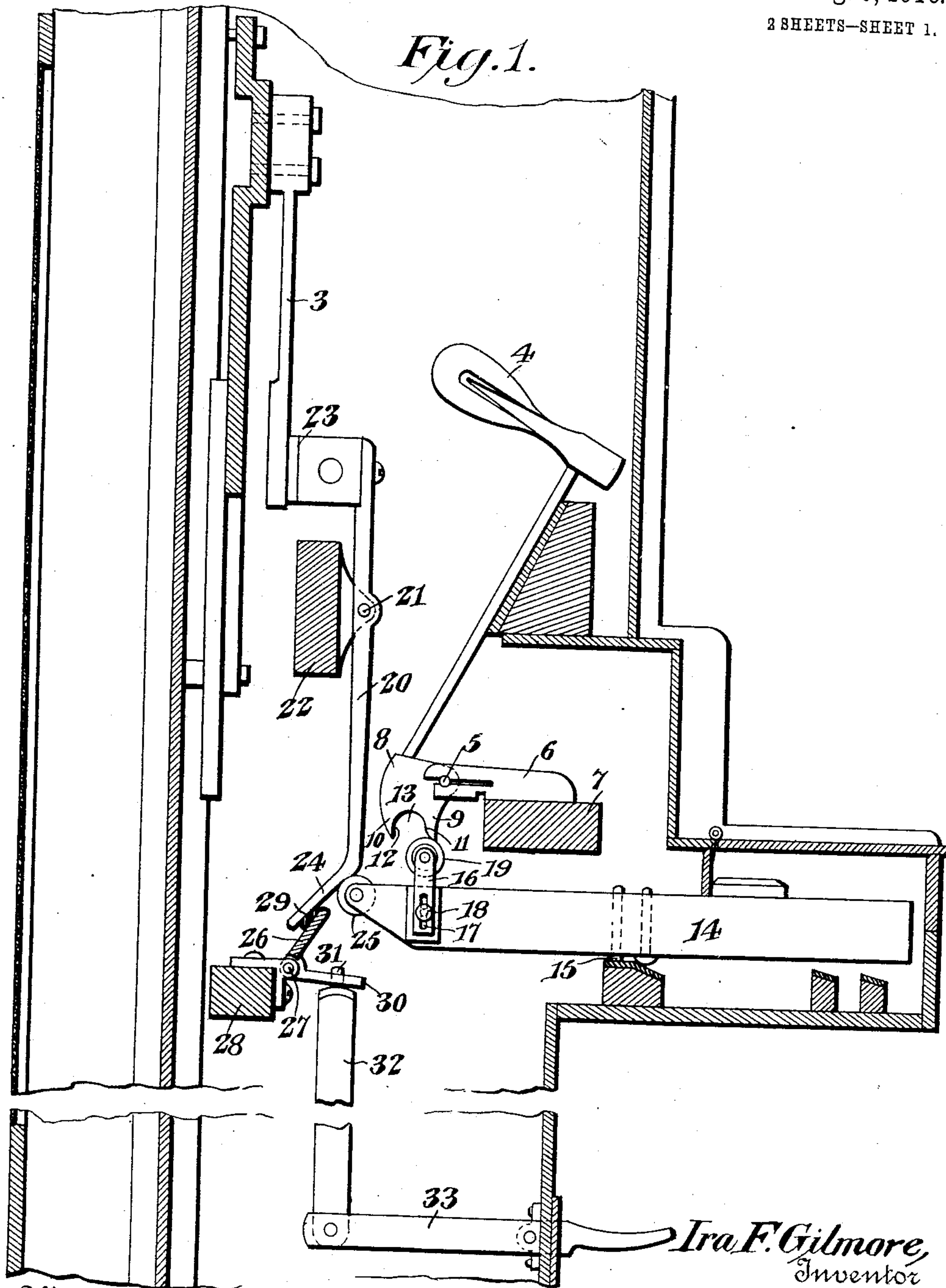
PIANO ACTION.

APPLICATION FILED JAN. 10, 1907. RENEWED JUNE 18, 1910.

967,015.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



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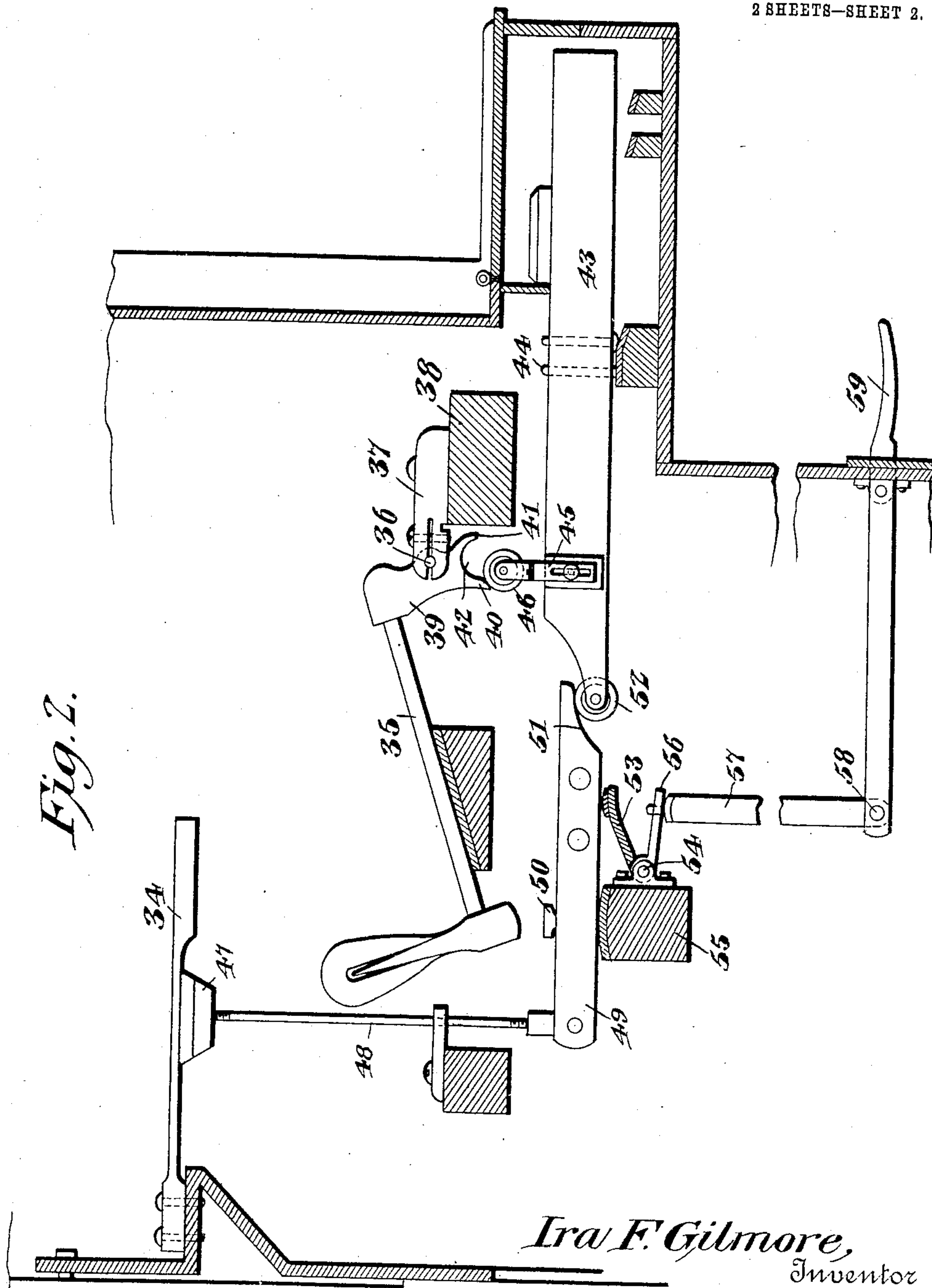
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# UNITED STATES PATENT OFFICE.

IRA F. GILMORE, OF BLOOMINGTON, ILLINOIS.

## PIANO-ACTION.

967,015.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed January 10, 1907, Serial No. 351,654. Renewed June 18, 1910. Serial No. 567,684.

*To all whom it may concern:*

Be it known that I, IRA F. GILMORE, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented a new and useful Piano-Action, of which the following is a specification.

This invention relates more particularly to piano actions for use in connection with musical instruments of the type set forth in my co-pending application, Serial No. 351,653, but said invention is not limited to such use, and may be successfully employed in stringed instruments.

One of the principal objects of the present invention is to provide a very simple structure wherein the keys coöperate directly with the hammers, and to employ effective devices that will secure the operative movements of the hammers upon the movement of the keys, but prevent the rebound of the former, said devices being relatively adjustable in order that they may be made to properly coöperate.

A further and important object is to provide simple and effective damper operating mechanism that is actuated both by the key and pedal mechanism of any desired character.

In the drawings:—Figure 1 is a detail sectional view through a musical instrument, showing the novel action. Fig. 2 is a similar view, illustrating a modified form of construction.

Referring first to the embodiment disclosed in Fig. 1, a music tongue 3 is disclosed, that is operated upon by a hammer 4, pivoted as shown at 5 to a bracket or flange 6 that is secured to a suitable supporting bar 7. The butt of the hammer is in the form of an enlargement 8, having spaced depending lugs 9 and 10, the inner faces 11 and 12 of which respectively constitute actuating and stop shoulders and are both located at one side of the pivot. These lugs form a socket 13, between them. A key 14 is pivotally supported between its ends, as shown at 15, and on the rear end of such key is mounted a vertically sliding standard 16 having a slot 17 therein. A fastening device 18 passes through the slot into the key, and serves to hold the standard 16 against its sliding movement, and in different positions on the key. A roller 19 is journaled on the upper end of the standard above the key, and said roller normally bears

against the lower end of the lug 9. This roller is so associated with the lugs 9 and 10 and the shoulders 11 and 12 thereof, that upon the depression of the outer end of the key 14, the roller will ride against the shoulder 11, and thereby quickly swing the hammer 4 into engagement with the music tongue 3. The engagement of said hammer with the tongue takes place, however, before the roller 19 enters into the socket 13, and when said roller is in the socket, it will also be against the shoulder 12 of the lug 10, said shoulder and lug being so arranged that they will maintain the hammer out of engagement with the music tongue, and consequently prevent any rebound of said hammer after it has once struck the tongue. It will thus be seen that simple actuating mechanism for the hammer is provided, and at the same time, said means also constitutes a lock that prevents the rebound of the hammer.

An upright lever 20 is fulcrumed between its ends, as shown at 21 upon a supporting bar 22. The upper end of this lever carries a damper 23 that is normally in engagement with the lower end of the music tongue. The lower terminal of the lever is offset at an inclination, as shown at 24, and is disposed directly adjacent to the inner end of the key. A roller 25 is journaled on said inner end of the key, and operates against the offset terminal 24 of the lever. Thus when the outer end of the key is depressed to swing the hammer 4, the roller 25 will ride up the inclined terminal 24 of the lever, and consequently swing the upper end of the lever so as to carry the damper 23 away from the tongue. Upon the release of the key, said damper will return to its position in engagement with the tongue. To hold the dampers away from the tongues, a damper actuating plate 26 is employed that is pivoted as shown at 27 on a supporting bar 28, and this plate has the rear portion of its upper end associated with the offset terminal 24 of the lever, cushioning material 29 being preferably interposed between the two. The plate 26 furthermore has a forwardly extending and angularly disposed arm 30, which is engaged by a pin 31 carried by the upper end of a link 32, the lower end of this link being suitably connected to a pedal 33. It will thus be evident by depressing the outer end of the pedal, the plate 26 will be swung rearwardly, and inasmuch as all the



levers are engaged with said plate, the dampers, carried by said levers, will be swung out of engagement with the music tongues.

5 A slight modification of the above described structure, is disclosed in Fig. 2. A horizontally disposed music tongue is shown at 34, and cooperating therewith, is an upwardly swinging hammer 35 pivoted, as  
10 shown at 36 to a bracket or flange 37 that is mounted on a supporting bar 38. The enlarged pivoted end 39 of the hammer has an actuating lug 40 and a stop lug 41, forming between them a socket 42. The key 43 piv-  
15 oted, as shown at 44 between its ends, carries at its inner end, a transversely disposed adjustable standard 45, on the upper end of which is mounted a roller 46. This roller co-  
20 operates successively with the lugs 40 and 41, and moves into the socket 42. The operation is exactly the same as that of the first described embodiment, that is to say, the  
25 hammer is swung upwardly by the engagement of the roller 46 with the lug 40, but its rebound is prevented by its final engagement with the lug 41, as will be evident. A  
damper 47 cooperates with the music tongue, and is supported on a stem 48 that is in turn  
30 supported by the inner end of a lever 49 fulcrumed between its ends, as shown at 50. The outer end of the lever has an inclined portion 51, against which operates a roller 52  
carried by the inner end of the key 43. A  
35 damper actuating plate 53, pivoted as shown at 54 to a supporting bar 55, operates against the under side of the outer end of the lever 49, and carries a forwardly extending angularly  
disposed arm 56 borne against by the upper end of a link 57. This link is pivoted,  
40 as shown at 58 to the inner end of a pedal 59. It will be noted that this structure operates in the same manner, and has the same advantages as that already set forth, and a  
further description thereof is believed to be  
45 unnecessary.

From the foregoing, it is thought that the construction, operation, and many advantages of the herein described invention will be apparent to those skilled in the art, with-  
50 out further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the ad-  
55 vantages of the invention.

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

1. In a piano action, the combination with a swinging hammer having a butt provided 60 with integral spaced lugs forming a rounded socket between them, of a key, and a rounded device carried by the key and successively engaging the lugs to respectively swing the hammer and prevent its rebound, said de- 65 vice moving into the socket and substantially filling the inner end thereof.

2. In a piano action, the combination with a swinging hammer having a butt provided with spaced lugs, said lugs forming a socket 70 between them, of a key, and a roller carried by the key and successively engaging the lugs to respectively swing the hammer and prevent its rebound, said roller being mov- 75 able into the socket.

3. In a piano action, the combination with a swinging hammer having a butt provided with spaced lugs, said lugs forming a socket between them, of a key, a standard adjust- 80 ably mounted on the key, means securing the standard against movement and in different positions on the key, and a roller journaled on the standard and successively en- 85 gaging the lugs to respectively swing the hammer and prevent its rebound, said roller being movable into the socket.

4. In a piano action, the combination with a swinging hammer having spaced lugs at its pivoted end, of a key pivotally mounted between its ends, a standard adjustably 90 mounted on the inner end of the key, a roller journaled on the standard and successively cooperating with the lugs of the hammer to respectively swing the hammer and prevent its rebound, a lever fulcrumed 95 between its ends, a damper connected to one end of the lever, a roller carried by the inner end of the key and engaging the other end of the lever, a swinging damper actu- 100 ating plate that engages the latter end of the lever, said plate having an angularly dis- posed arm, and a pedal having a link con- 105 nection with the arm.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signa- 105 ture in the presence of two witnesses.

IRA F. GILMORE.

Witnesses:

JESSE M. GOODHEART,  
MARY R. CROTTY.