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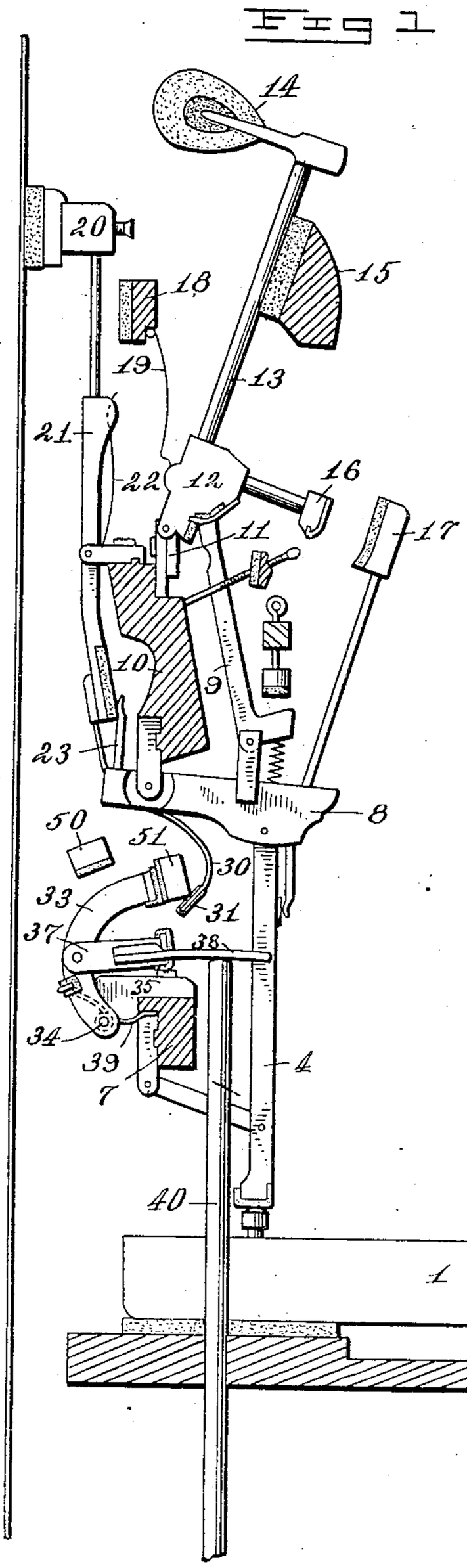
PIANO ACTION.

APPLICATION FILED FEB. 24, 1909.

932,685. Patented Aug. 31, 1909.

2 SHEETS—SHEET 1.

Fig 1.




Witnesses

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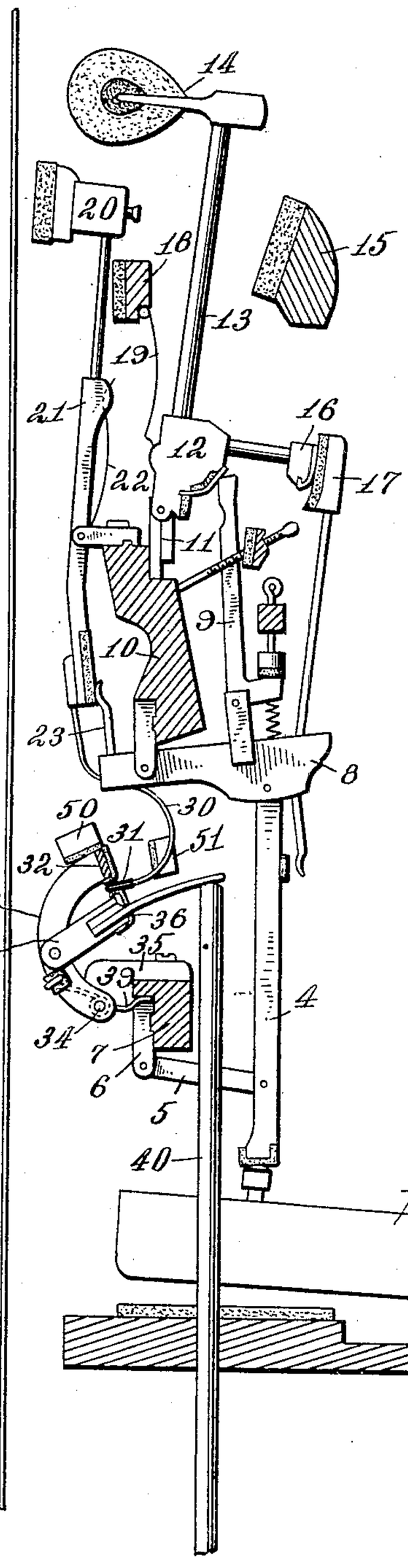


Fig 2.

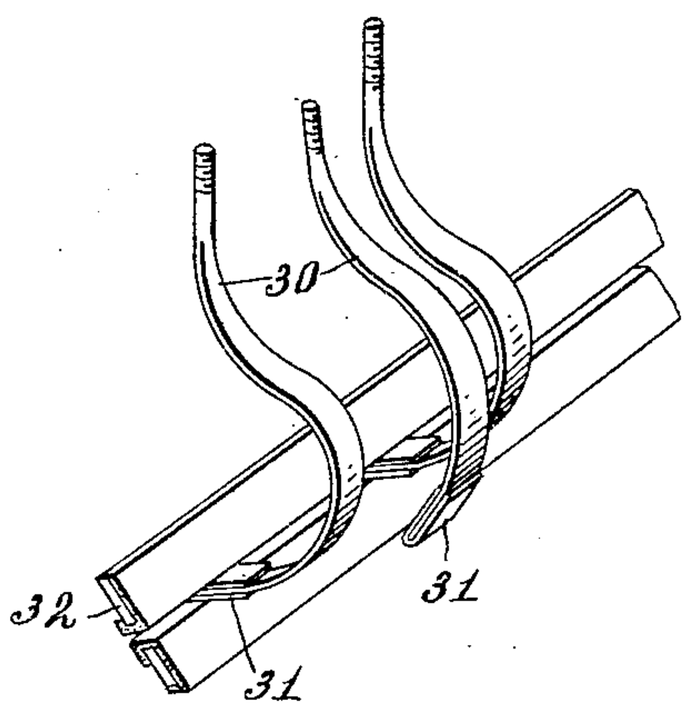


Fig 3.

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# UNITED STATES PATENT OFFICE.

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## PIANO-ACTION.

932,685. Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed February 24, 1909. Serial No. 479,729.

*To all whom it may concern:*

Be it known that I, AUGUSTUS D. DIMICK, a citizen of the United States, residing at Wakefield, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Piano-Actions; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to improvements in piano actions and more particularly to the actions of upright pianos.

The object of the invention is to provide an improved sostenuto attachment, so related to the piano action as to be positive in its operation of holding the dampers of the operated keys away from the strings, in order that the strings of the selected keys may be permitted to vibrate and sustain the tone or tones after pressure on the key or keys has been released, and until the sostenuto-pedal, in turn, has been released. To this end said sostenuto attachment comprises spring fingers connected to the damper levers, a rocking clutch adapted to engage and retract the spring damper fingers of the operated keys from their normal position to retain the corresponding dampers away from the strings, and a pedal rod adapted to first close the jaw members of the clutch and then rock the clutch to retract the engaged spring fingers of the damper levers.

In the accompanying drawings, Figure 1 is a vertical elevation, partly in section, of a piano action involving my improvements. Fig. 2 is a view corresponding to Fig. 1 showing the sostenuto attachment in operation. Fig. 3 is an enlarged perspective view illustrating the relation of the clutch and the spring fingers of the sostenuto attachment.

It has long been desired to provide a standard piano action with a simple cheap and, efficient sostenuto attachment, operated by means of an additional pedal and serving to retain one or more of the dampers, that happen to be raised when the pedal is actuated, out of contact with the corresponding strings, when the keys have been released so that the strings may continue to vibrate. As heretofore constructed and applied, the sostenuto attachments have usually involved the use of a series of fingers adapted to be raised into position to engage the ends of the damper levers, and hold the dampers in retracted position, as long as the sostenuto pedal is depressed. It has been found that constructions of this character rapidly deteriorate, owing to the small engaging surface between the parts, and any material wear at such surfaces would prevent the proper operation of the sostenuto, and moreover result in a noisy action. The present invention is intended to obviate these difficulties and to provide a sostenuto attachment, involving a rocking clutch, which is adapted to engage spring fingers on the damper levers and hold said levers by spring action in retracted position, the clutch after being closed by the pedal action being moved out of the path of the damper spring fingers of subsequently actuated keys.

Referring to the drawings, the numeral 1 indicates a standard piano key mounted on the balance rail 3 of the key frame 2. Cooperating with the key 1, and connecting the same with the wippen 8 is the abstract 4, of usual form connected with the abstract rail 7 in the usual manner. The upper end of the abstract 4 is pivoted to the wippen 8, which in turn is pivotally connected to the action rail 10. Pivotally mounted on the wippen 8 is the jack 9. The hammer comprising the hammer head 14, stem 13 and butt 12, is pivoted to the flange 11 secured to the action rail. Coöperating with the hammer is the hammer rail 15. The hammer is provided with the usual back-stop 16 associated with back check 17 connected by a stem to the wippen. Associated with the hammer and its actuating mechanism is the damper 20 provided with damper lever 21 which is attached to the action rail 10 and is provided with the usual damper spring 22 which normally forces the damper against the string, a spoon 23 mounted on the rear end of the wippen serving to retract the damper when the key 1 is depressed and the hammer is driven against the string.

To the rear of the hammer is located the hammer spring rail 18 to which is secured the hammer spring 19 which forces the hammer away from the string.

All the parts as thus far described are common to the usual standard piano action.

The sostenuto attachment comprises a highly flexible spring 30 attached to each end of the damper lever 21, said spring being conveniently formed with a reverse curve so that it passes forwardly between adjacent wippens and then rearwardly between the normally open jaws of a rocking clutch. Each of the springs 30 is slightly stronger than the damper spring 22 so as to exercise a little heavier pull on the damper lever than the main damper spring and thereby overcome the action of the latter and retain the dampers retracted from the strings when said springs 30 are engaged by the clutch and the latter is moved or rocked to the rear. The rocking clutch comprises a main jaw consisting of a bar 32 covered with felt, mounted upon two arc-shaped arms 33, which are pivoted by pins 34 to brackets or hangers 35, secured to the abstract rail 7. Pivoted to the arms 33 is a second coöperating jaw 36 likewise covered with felt and provided with arms 37 by means of which it is connected to arms 33. Extending forwardly from one of the arms 37 is a finger 38, the forward end of which is adapted to be engaged by a pedal rod 40, which is appropriately connected with the third pedal of the piano, so that when the latter is depressed, the rod 40 serves first to close jaw 36 on jaw 32 and subsequently rock the entire clutch toward the rear. A retractile spring 39, attached at one end to one of the arms 33 and catching under the rear shoulder of the abstract rail, serves to hold the clutch in its forward position, shown in Fig. 1. Two stops 51 and 50 serve to limit the forward and rearward movement of the clutch. The ends of the springs 30 are likewise covered with felt to afford a better gripping surface for the clutch and also to suppress any noise which would otherwise result from the engagement of the clutch jaws with said springs.

In the normal operation of the piano, to wit, when the sostenuto pedal is not operated, the clutch occupies the position shown in Fig. 1 and the ends of the springs 30 pass freely in and out between the jaws of the clutch when the keys are operated. When it is desired to employ the sostenuto attachment to hold a damper or series of dampers from contact with the corresponding strings, and thereby permit the latter to sustain their vibration, either under the impulse of the hammers or sympathetically, after the key or keys which produce the selected tone or tones are depressed, the sostenuto pedal is depressed before said keys are released. This has the effect of causing the pedal rod 40 to lift finger 38, thereby first closing jaw 36 and gripping the ends 31 of the springs 30 of the several retracted dampers against the main clutch member 32, and immediately thereafter swinging or rocking the entire clutch on its pivot pins 34 until it is arrested by the back-stop 50. This moves or retracts the springs 30 toward the rear and holds them in that position as long as the foot is kept on the sostenuto pedal. This retractile movement of the springs 30, acting in opposition to the damper springs 22 holds the dampers away from the strings until the sostenuto pedal is released. It will be particularly noted, however, that the rocking movement of the clutch toward the rear carries the same out of the way of the ends of springs 30 of any subsequently operated keys, thereby permitting all of the keys to be operated at will. As soon as the sostenuto pedal is released, the spring 39 rocks the clutch forward until jaw 32 engages front stop 51, and jaw 36 opens and rests on brackets 35 and the springs 30 are released and returned to their normal position.

What I claim is:—

1. In a piano action, the combination with the damper levers, of a sostenuto attachment, comprising spring fingers connected to said damper levers, a rocking clutch adapted to engage and retract the spring fingers from the normal position to retain the dampers of the operated keys away from the strings, and a pedal rod for rocking the clutch.

2. In a piano action, the combination with the damper levers, of a sostenuto attachment, comprising spring fingers connected to said damper levers, a rocking clutch including a main pivoted jaw, a second coöperating jaw pivoted on and adapted to close upon the main jaw to engage and retract the spring fingers from the normal position to retain the dampers of the operated keys away from the strings, and a pedal rod for rocking the clutch.

3. In a piano action, the combination with the damper levers, of a sostenuto attachment, comprising spring fingers connected to said damper levers, a rocking clutch adapted to engage and retract the spring fingers from their normal position to retain the dampers of the operated keys away from the strings, and a pedal rod for first closing the jaws of the clutch and then rocking said clutch.

4. In a piano action, the combination with the damper levers, of a sostenuto attachment, comprising reversely curved spring fingers extending from the damper levers, a rocking clutch adapted to engage and retract the spring fingers from their normal position to retain the dampers of the operated keys away from the strings, said clutch including a main pivoted jaw, a second co-

operating jaw pivoted on the main jaw, said jaws being normally separated to permit the ends of the spring fingers to pass between them when the keys are operated, and a pedal rod engaging the second jaw to close the same upon the main jaw and then swing the clutch.

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

AUGUSTUS D. DIMICK.

Witnesses:
ARTHUR L. BRYANT,
CHAS. J. O'NEILL.