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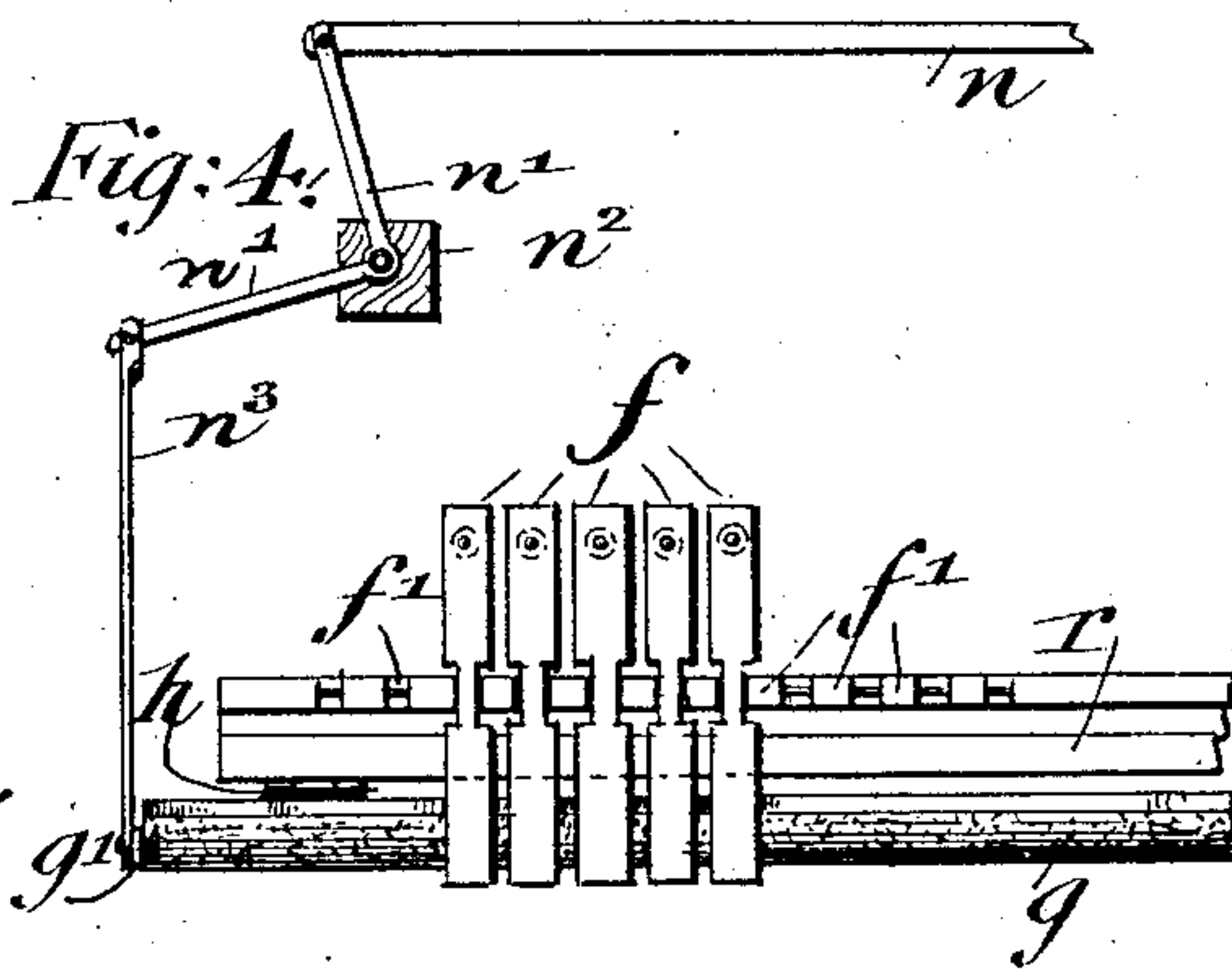
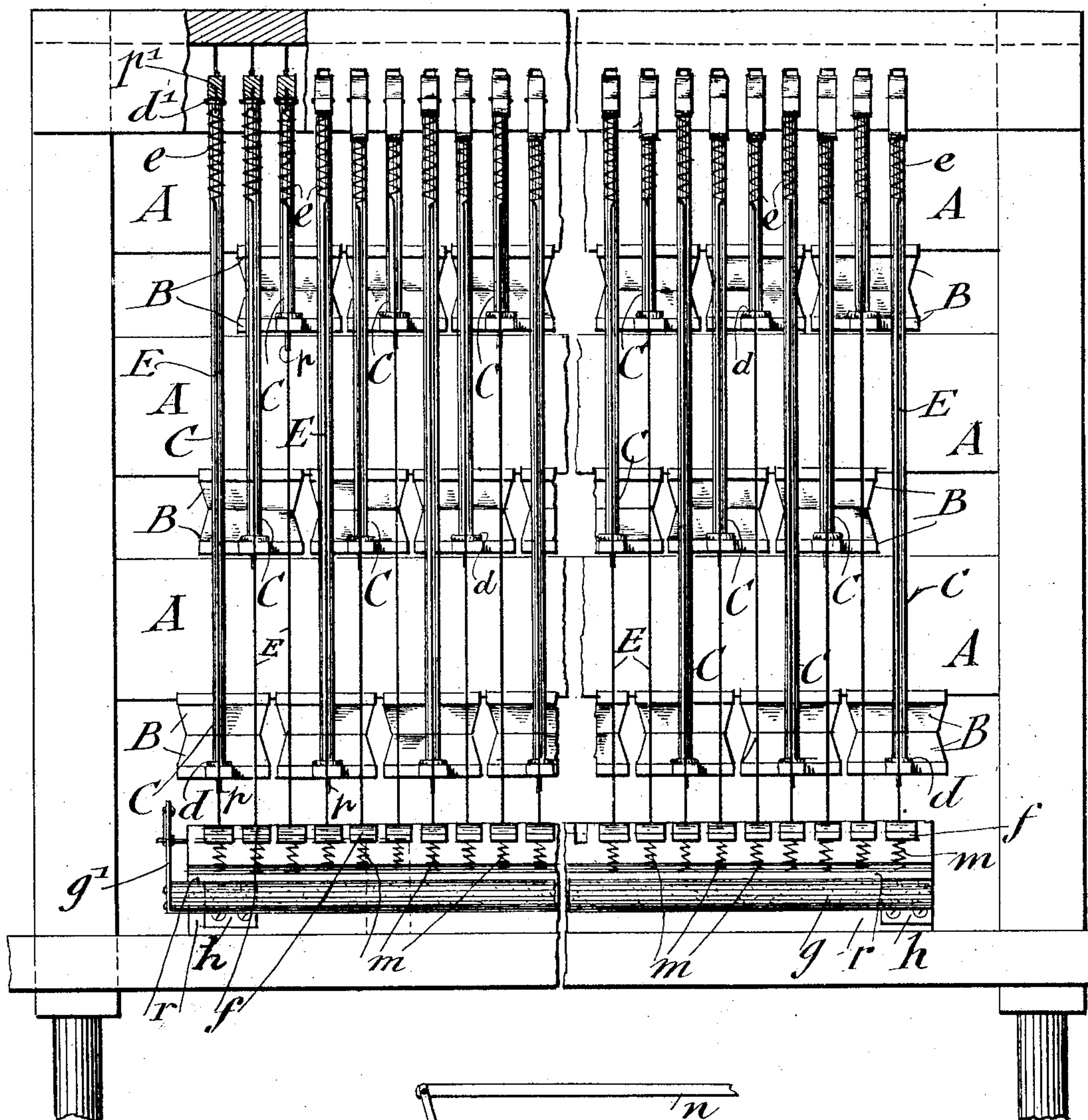
EXPRESSION DEVICE FOR SELF PLAYING ATTACHMENTS FOR PIANOS.

APPLICATION FILED MAY 18, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

Fig:3.



WITNESSES

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EXPRESSION DEVICE FOR SELF-PLAYING ATTACHMENTS FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 745,944, dated December 1, 1903.

Application filed May 18, 1903. Serial No. 157,603. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WIESER, a citizen of the United States, residing in New York, borough of Brooklyn, and State of New York, have invented certain new and useful Improvements in Expression Devices for Self-Playing Attachments for Pianos, of which the following is a specification.

This invention relates to certain improvements in expression devices for self-playing attachments for pianos and other keyed instruments, said improvements being designed with a view of producing an expression device of comparatively simple construction which is not connected with the pneumatic valve-actions of the key-operating devices, but with the key-operating levers, the expression devices of all the key-operating levers being set to action simultaneously by suitable lever mechanism and thrown out of use when not required, so that the construction of the pneumatic valve-actions is considerably simplified, for the reason that the expression devices are entirely separate from the same, and consequently a self-playing attachment can be furnished at a much lower price than the self-playing attachments in which the expression devices form a part or are connected with each individual valve-action.

For this purpose the invention consists of certain details of construction and combinations of parts, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical transverse section through the pneumatic valve-actions of a self-playing attachment for pianos, showing the expression devices in side elevation and set into position of rest. Fig. 2 is a side elevation of my improved expression device shown in active position and dampening the effect of the keys. Fig. 3 is a rear elevation, partly in section, of the pneumatic valve-actions and key-levers operated by the same and their connection with the improved expression device; and Fig. 4 is a plan view of a portion of the expression device.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a number of pneumatic valve-actions of the well-known construction, which are built up in tiers one above the other and supported on the upright side boards of the frame of the self-playing attachment. The valve-actions are connected by rubber tubes *t* with the tracker T, so as to respond to the air that is drawn in whenever one of the tracker-openings is opened by the passage of the perforated music-sheet over the same. Below each tier of pneumatic valve-actions A are arranged as many pneumatics B as there are valve-actions in said tier, said pneumatics being connected at the end of their outer movable or collapsible portions with the pusher-rods C, which are seated by a pin *p* in an aperture of the collapsible movable ends of the pneumatics and are retained thereon by buttons *d*, of leather or other suitable material. The pusher-rods C are made shorter for the upper pneumatics, somewhat longer for the intermediate pneumatics, and of greater length for the lower series of pneumatics, as shown clearly in Fig. 3. The upper ends of the pusher-rods C are connected by a pin *p'* and leather button *d'* with a series of horizontally - arranged key-levers K, which are made of different lengths and provided with cushions at their outer ends, so as to depress the white and black keys of the piano when the self-playing attachment is placed in position for playing the piano and operated. A flat spring S presses on the front end of the key-operating levers K, so as to hold them out of contact with the keys when they are not actuated by their pneumatic valve-actions.

The arrangement of the pneumatic valve-actions, pneumatics, pusher-rods, and key-operating levers so far described is well-known and forms no part of my invention, in which an expression device connected with the key-operating levers and operated by a fulcrumed hand-operated lever L, projecting through the casing of the self-playing attachment at the front part of the same, is used. The fulcrumed lever L sets the expression devices connected with the key-operating levers into position of rest or into position of action, as shown, respectively, in Figs. 1 and 2. The expression devices consist of

a series of fulcrumed levers f , that are arranged horizontally alongside of each other and supported on upright supports f' , which are attached to a rail r on the bottom of the frame of the self-playing attachment. The front ends of these horizontal levers f are connected by rods E with the rear ends of the key-operating levers K , which rods E are provided at their lower ends with leather or other buttons b , that are screwed upon the threaded ends of the tension-rods E , each below the fulcrumed levers, while the upper ends are bent into helical shape, as shown at e , and are connected by an eye at the extreme upper end with a hook e' on the rear end of the key-operating lever K , as shown clearly in Fig. 1. The opposite ends of the fulcrumed levers f are acted upon by helical springs m , interposed between them and the supporting-rail r . To the rear side of the rail r is hinged by a hinge h a rail g , that extends transversely through the frame of the self-playing attachment and which is provided with a felt face l and which is independent of and normally out of contact with the fulcrumed levers, but which engages the rear ends of all the levers f when the rail g is moved on its hinge connection into raised position, as shown in Fig. 2. The rail g is placed in this position by the fulcrumed hand-operated lever L , the lower end of which is connected by a pivot-rod n with an elbow-lever n' , fulcrumed to an intermediate upright support n^2 on the bottom of the self-playing attachment, the opposite arm of the elbow-lever n' being connected by a pivot-rod n^3 with an arm g' , that is attached to the transverse rail g at right angles to the same, so as to move by the operation of the lever L the rail g from its lower position back of the supporting-rail r into raised position, so as to engage the rear ends of the series of levers f , as shown clearly in Fig. 2. In this position it sets all the rods E , with the springs e at their upper ends, which are connected with the key-operating levers K , to tension—that is, as soon as the key-operating lever K is operated by the pusher-rod C in one direction the tension-rod E acts on the lever K in the other direction, inasmuch as it is prevented from following the motion of the levers K by being held at its lower end by the levers f , which are prevented from moving by the rail g , as shown in Fig. 2. Thereby the force with which the levers K strike the keys of the piano is moderated, producing thereby the piano-playing of the same. When the forte-playing is desired—that is, when the key-operating levers K are to strike with full force—the expression device is set in position of rest, as shown in Fig. 1, in which position the rail g is removed away from the fulcrumed levers f and in back of the rail r , which permits the free play of the tension-rods E and of the key-operating levers K , so that the full stroke is exerted on the keys of the piano. The expression devices are also

in a position of rest when the self-playing attachment is not in action.

My improved expression device for self-playing attachments for pianos is set from a position of rest to an active position, so as to change the action of the key-operating levers, by the lever L at the front part of the self-playing attachment, and the setting to tension of the springs e of the tension-rods E , by which the expression-levers are connected with the key-operating levers, is accomplished by means of the buttons b , so as to moderate thereby the force by which the keys are depressed and produce at the will of the operator piano or forte playing of the keys of the piano. As the expression devices are assembled independently of the pneumatic valve-actions and pneumatics of the self-playing attachment and attached to the bottom of the self-playing attachment, while the tension-rods are placed in position at the front ends of the key-operating levers, a very reliable but comparatively simple and cheap construction is obtained by which the expression of the piano—that is, the forte or piano playing—is produced. A pneumatic self-playing attachment with the expression device described can thereby be manufactured at a considerably smaller price than the self-playing attachments heretofore in use, in which the expression devices were embodied in and made a part of the pneumatic valve-actions.

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

1. In a self-playing attachment for pianos, the combination, with the pneumatic valve-actions, pneumatics controlled by the same, key-actuating levers, and pusher-rods between the pneumatics and key-operating levers, of expression devices consisting of spring tension-rods connected with the key-operating levers, fulcrumed levers connected with the opposite ends of said spring tension-rods, means independent of, and normally out of contact with said fulcrumed levers and adapted to engage the same, and actuating means for said engaging means, substantially as set forth.

2. In a self-playing attachment for pianos, the combination, with the pneumatic valve-actions, pneumatics operated by the same, key-actuating levers, and pusher-rods between the pneumatics and key-operating levers, of expression devices consisting of spring tension-rods connected at their upper ends with the key-operating levers, a series of fulcrumed levers connected with the lower ends of said spring tension-rods, a hinged rail adapted to engage said fulcrumed levers or release the same, and lever mechanism connected with said hinged rail for setting the same into raised or lowered position, substantially as set forth.

3. In a self-playing attachment for pianos, the combination, with the pneumatic valve-

actions, pneumatics operated by the same, key-actuating levers, and pusher-rods between the pneumatics and key-operating levers, of expression devices consisting of spring tension-rods connected at their upper ends with the key-operating levers, fulcrumed levers connected with the lower ends of said spring tension-rods, a hinged rail adapted to engage or release the rear ends of said fulcrumed levers, a stationary arm on said hinged rail, and lever mechanism connected with said stationary arm and adapted to be operated from the front part of the attachment for setting the spring tension-rods or releasing the same, substantially as set forth.

4. In a self-playing attachment for pianos, the combination, with the pneumatic valve-actions, pneumatics operated by the same, key-actuating levers, and pusher-rods between the pneumatics and key-operating levers, of a plurality of spring tension-rods connected at their upper ends with the key-operating levers, a transverse rail at the rear of the casing of the attachment, a plurality of levers fulcrumed on said rail, and connected at one end with the lower ends of the tension-rods, a second rail hinged to said transverse rail, and means for moving said second rail

for engaging with or releasing the free ends of the fulcrumed levers, substantially as set forth.

5. In a self-playing attachment for pianos, the combination, with the pneumatic valve-actions, pneumatics operated by the same, key-actuating levers, and pusher-rods between the pneumatics and key-operating levers, of a plurality of spring tension-rods connected at their upper ends with the key-operating levers, a transverse rail at the rear of the casing of the attachment, a plurality of levers fulcrumed on said rail and connected at one end with the lower ends of the tension-rods, a spring interposed between each fulcrumed lever and the rail, a second rail hinged to said transverse rail, and means for moving said second rail for engaging with or releasing the free ends of the fulcrumed levers, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOSEPH WIESER.

Witnesses:

PAUL GOEPEL,
C. P. GOEPEL.