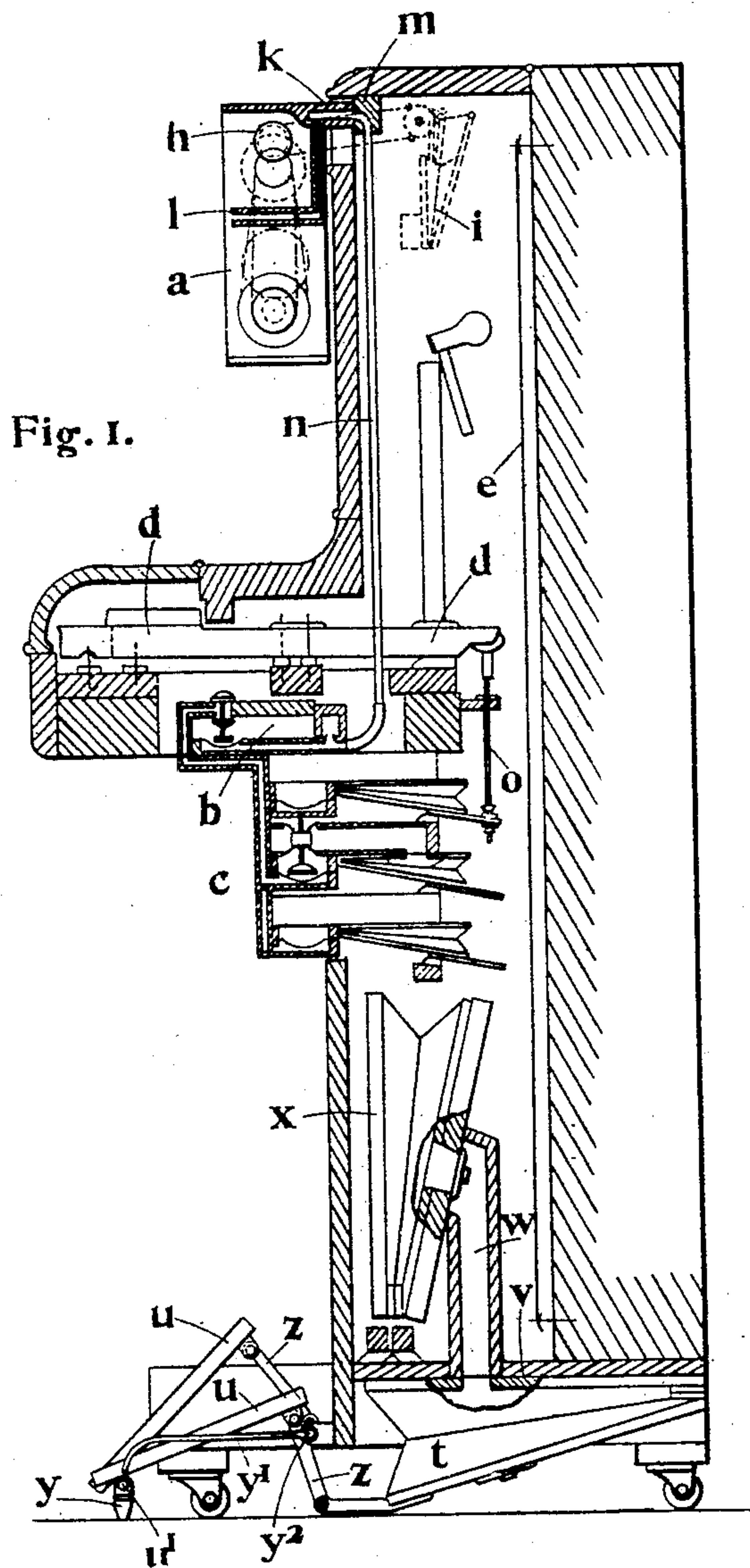


H. F. GOLDSMITH.
PIANO PLAYING MECHANISM.
APPLICATION FILED FEB. 26, 1910.

967,148.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



Witnesses—
Stanley Wood
Henry William Blake

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2 SHEETS—SHEET 2.

Fig. 2.

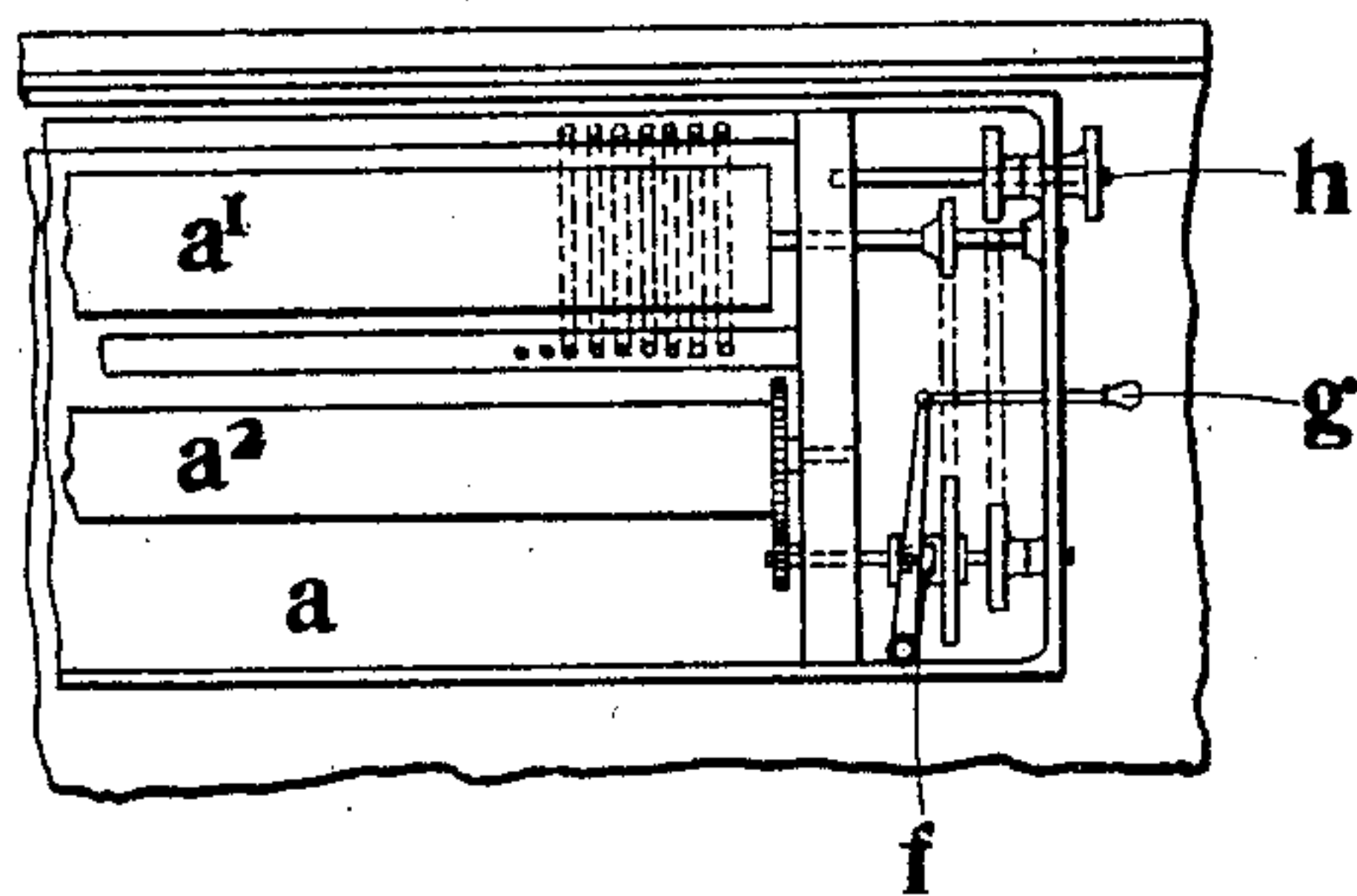
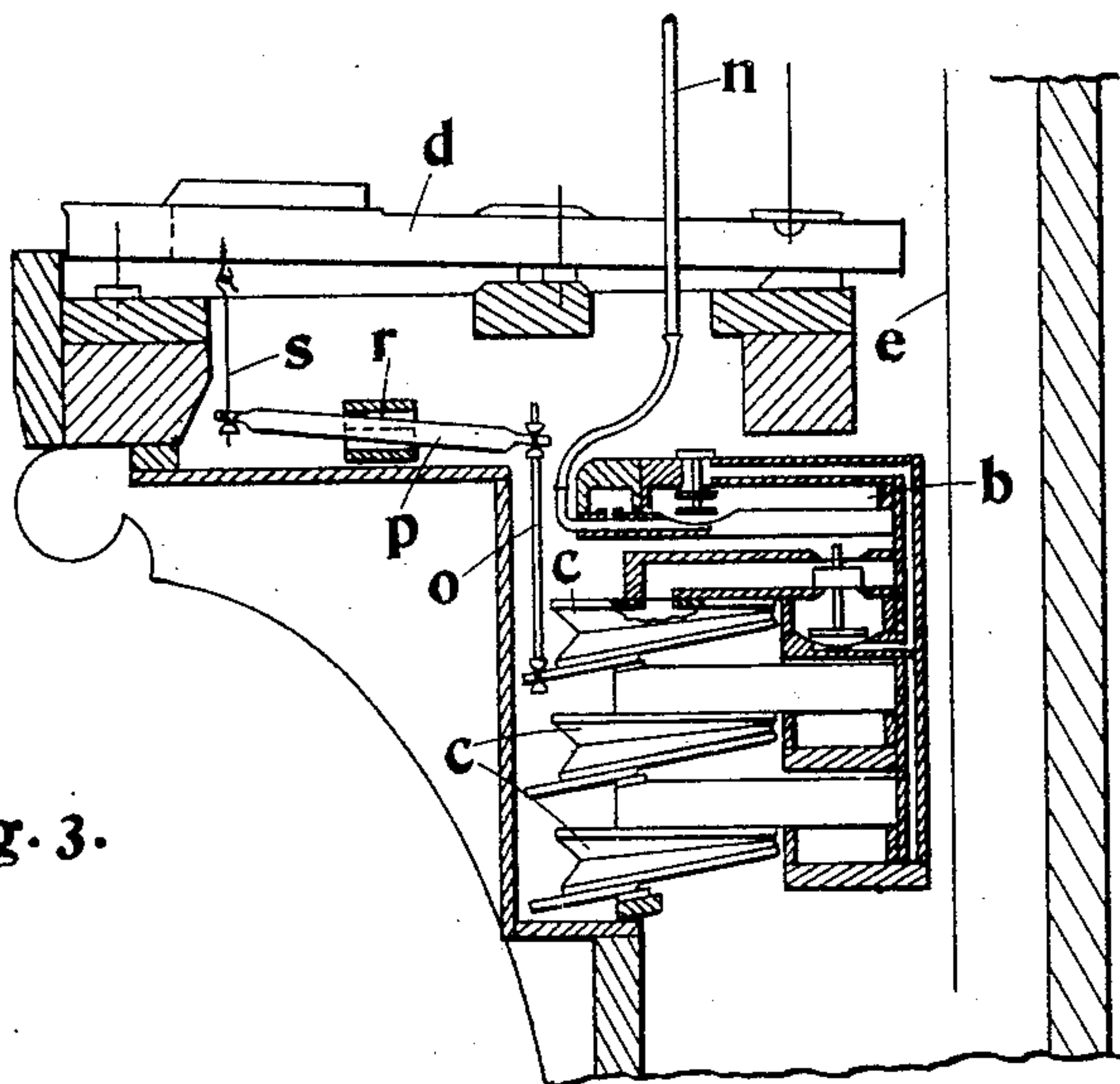


Fig. 3.



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UNITED STATES PATENT OFFICE.

HERBERT FREDERICK GOLDSMITH, OF LONDON, ENGLAND.

PIANO-PLAYING MECHANISM.

967,148.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed February 26, 1910. Serial No. 546,131.

To all whom it may concern:

Be it known that I, HERBERT FREDERICK GOLDSMITH, a subject of the King of Great Britain and Ireland, residing at 30 Ritchie road, Woodside, South Norwood, London, S. E., England, pianoforte manufacturer, have invented certain new and useful Improvements Relating to Piano-Playing Mechanism, of which the following is a specification.

This invention relates to piano players, the mechanism of which is fitted within the piano case, and has particular reference to that type in which the pneumatic self-playing mechanism is stated to be fitted to existing pianos of the cottage or upright grand type, and in such a manner as to allow the piano to be played by hand. In practice, it is found that pianos vary so greatly in dimensions that such mechanism is only applicable to the comparatively few pianos which have the requisite interior accommodation. In one such piano player the tracker box, a clock-work or electric motor, and the connecting pipes or tubes are mounted upon a removable frame which bridges over the keys from side to side and rests upon the end blocks, where the pipes connect with those leading to the primary pneumatics.

According to my invention only the tracker box is external to the piano, all the other mechanism being fitted within the case with the exception of the pedals which are of necessity fitted externally but are readily folded up when not required. The arrangement and the dimensions are such as will render the parts capable of universal adaptation to all makes of vertical pianos, instead of preparing each set of mechanism for each make of piano as is usual.

In the accompanying drawings, Figure 1 is a vertical section of a piano showing the general arrangement of the self-playing mechanism. Fig. 2 is a front view of a portion of the tracker box and Fig. 3 is a vertical section of the pneumatics showing a modification.

Referring to Figs. 1 and 2, *a* is the tracker box, *b* represents the primary pneumatics and *c* the secondary pneumatics.

d represents the keys of the pianoforte and *e* the strings.

The tracker box *a* is provided with suitable gearing such as indicated by which the music roller *a*¹ and the take-up roller *a*² may be rotated in either direction accord-

ing to the position of the clutch *f* which is operated by the external handle *g*. The gearing is driven by the external wheel *h* which is rotated by a chain or other suitable gearing connecting the same with a pneumatic motor located within the case at *i* and indicated by the dotted lines. The tracker box *a* is formed with a perforated rail *k* the air ducts of which communicate with the air ducts in the tracker board *l* and a similar perforated rail *m* is fixed within the case, and the perforations in said rail are connected by pipes *n* to the primary pneumatics *h* provision being made to allow said pipes to pass between the keys *d* without interfering with their movement. The rails *k* and *m* may be attached and anchored, respectively, by any proper means. The rail *m* may be anchored to the interior of the piano, and the rail *k* attached thereto.

The motor pneumatics controlled by the secondary pneumatics (which are arranged in three rows) are shown in Fig. 1 as adapted to raise the inner end of the keys *d* by stickers *o* and in Fig. 3 the secondary pneumatics are reversed in position (back to front) and operate the keys by pulling them down through the intervention of lever *p* pivoted in a rail *r* and connected by links *s* to the keys as has been previously proposed for use in player pianos. In all cases the connection is such that the keys may be placed by hand without operating the motors or their connecting mechanism.

The horizontal feeders or vacuum pumps *t* which are operated by the pedals *u* are attached to the underside of the floor *v* of the piano and are provided with vertical trunks *w* which pass up through openings cut in the floor *v* and are connected with the bellows or reservoir *x* which is fixed in position between the piano frame and the lower front panel. The primary and secondary pneumatics and the motor which rotates the tracker or music rollers are connected to the bellows *x* in any suitable manner and it will be understood that pallets or valves are fitted where required.

Preferably the tracker box *a* is fitted to the piano at the upper part of the front panel, a suitable portion thereof being cut out to accommodate the rail *k*. When the tracker box is removed a small panel may be fitted to close the opening, and the said small panel may conveniently carry the ordinary music desk.

The pedals u are pivoted at u^1 to a rest y which is linked by a frame y^1 to the front of the piano to which it is pivoted at y^2 , the pedals being connected to the feeders t by
5 links z .

What I claim as my invention and desire to secure by Letters Patent is:—

In a piano playing mechanism, a music roll, a tracker box external to and secured
10 to the piano and having its upper side wall thickened and provided with perforations and extended sufficiently beyond the rear of the tracker box to contact with and be secured to a perforated rail within the casing
15 and containing proper gearing for actuating the music roll, a rail secured to the piano casing at the top and front of the piano and

just inside the same and provided with perforations so that the perforations above referred to register with each other, means 20 actuating said gearing located within the casing and above the piano action, pneumatic devices connected to said tracker box, means for connecting the pneumatic devices to the piano keys, and means for exhausting 25 the pneumatic devices.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

HERBERT FREDERICK GOLDSMITH.

Witnesses:

WILLIAM EDWARD EMERY,
SAMUEL GREENBERG.