

G. HEYDRICH.

Piano and Organ Printing Attachment.

No. 133,987.

Patented Dec. 17, 1872.

Fig. 1.

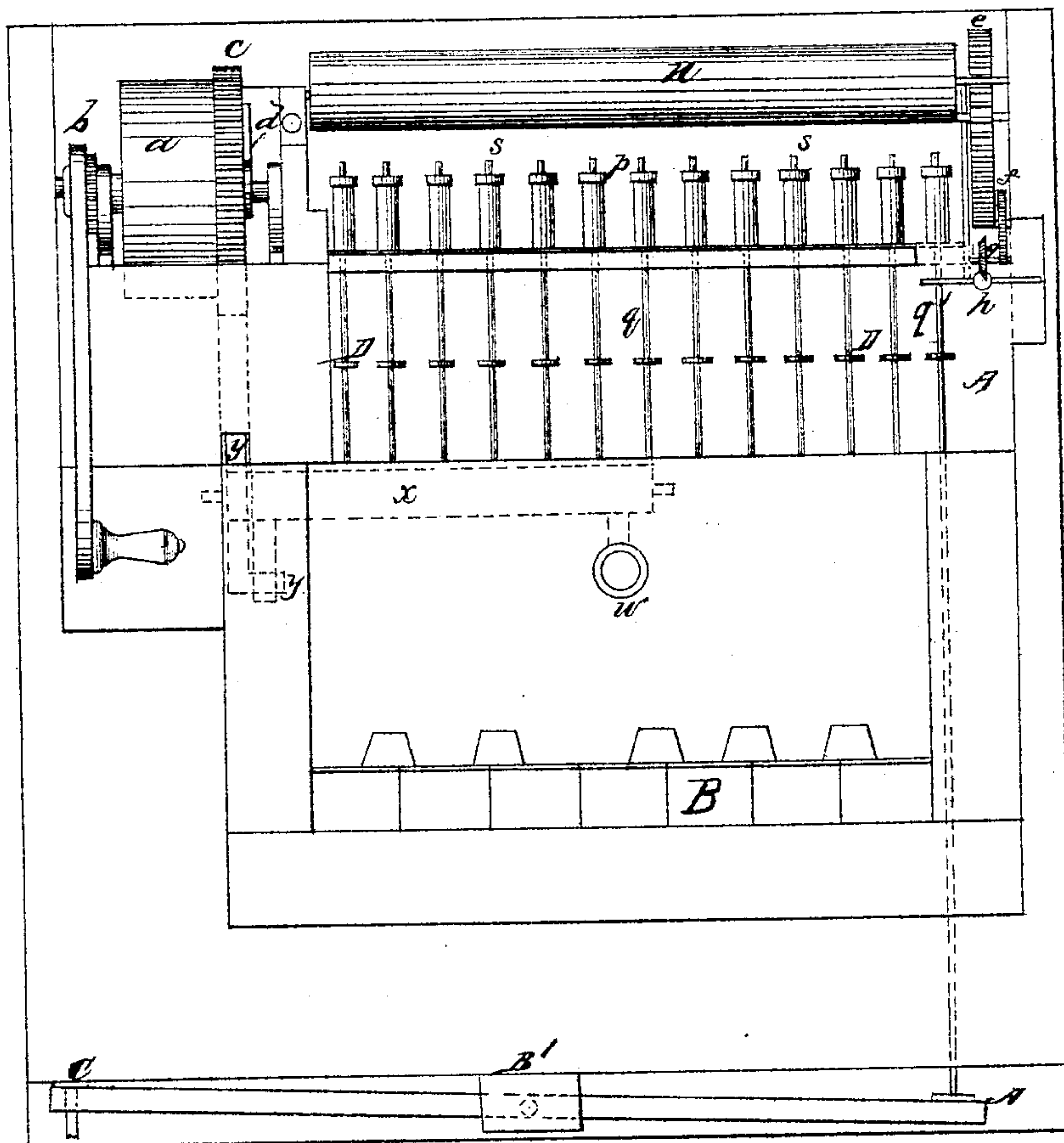
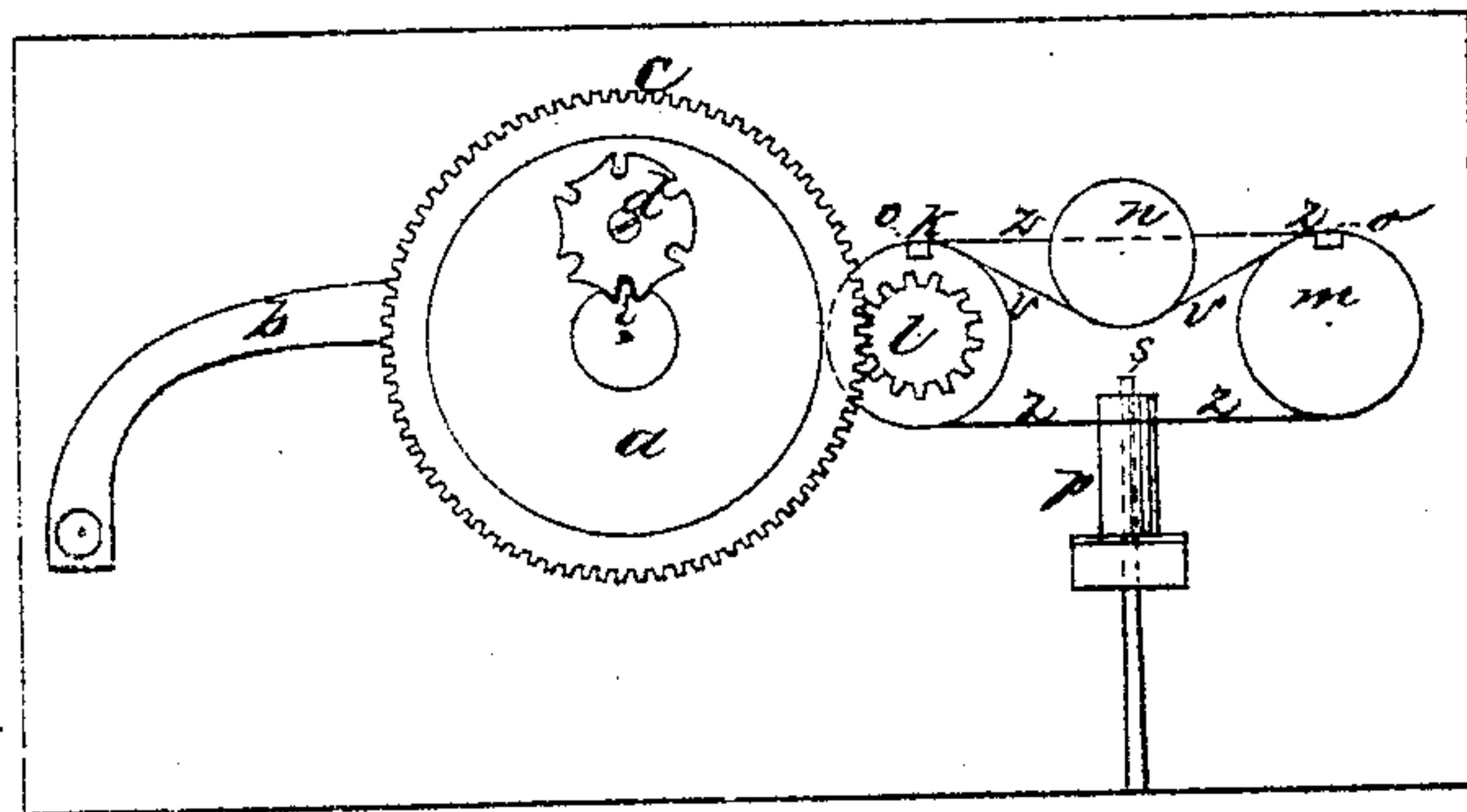


Fig. 2.



Witnesses.

C. J. Clothier
C. F. Held

Inventor.

Gustav Heydrich.

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Fig. 3.

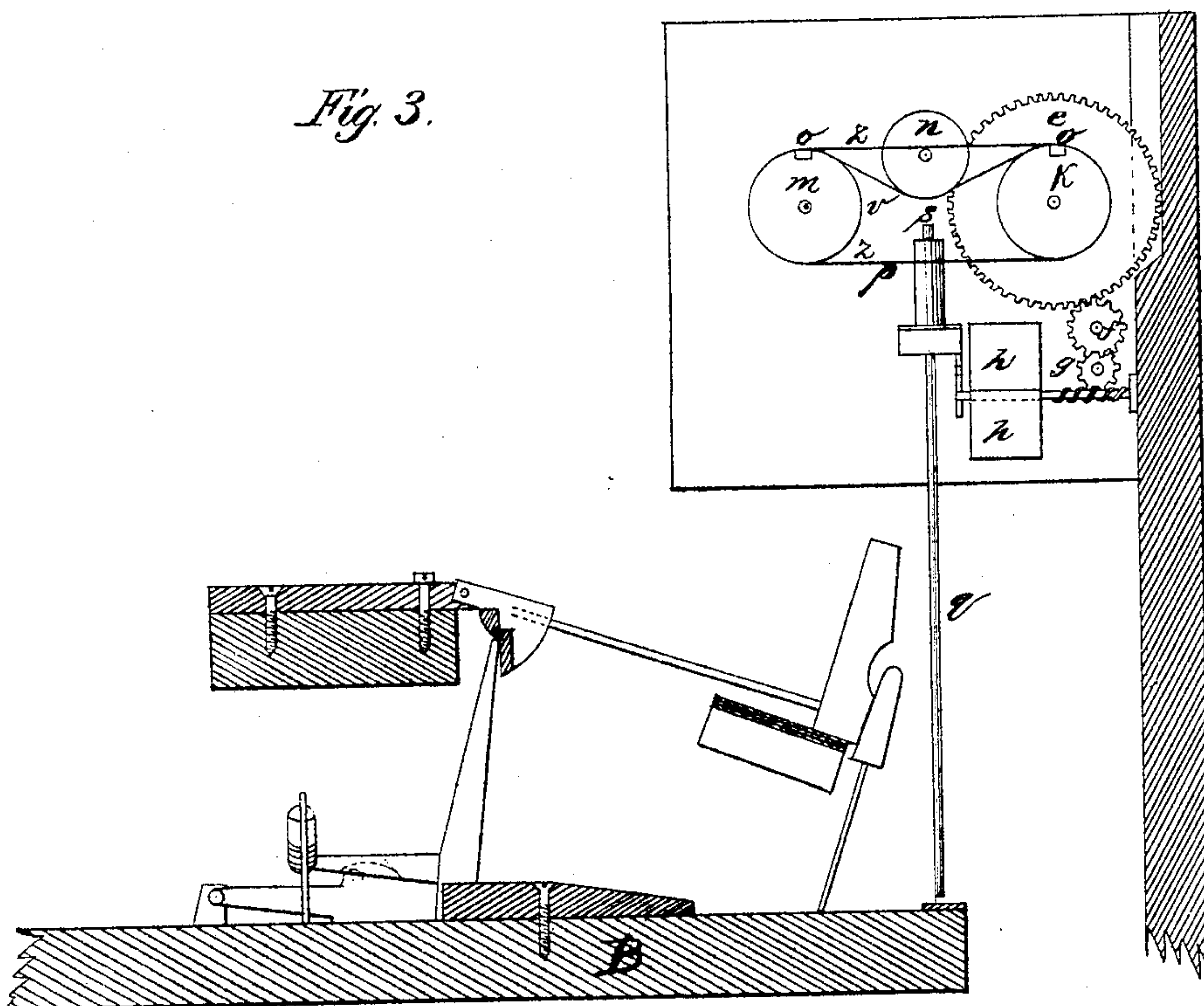
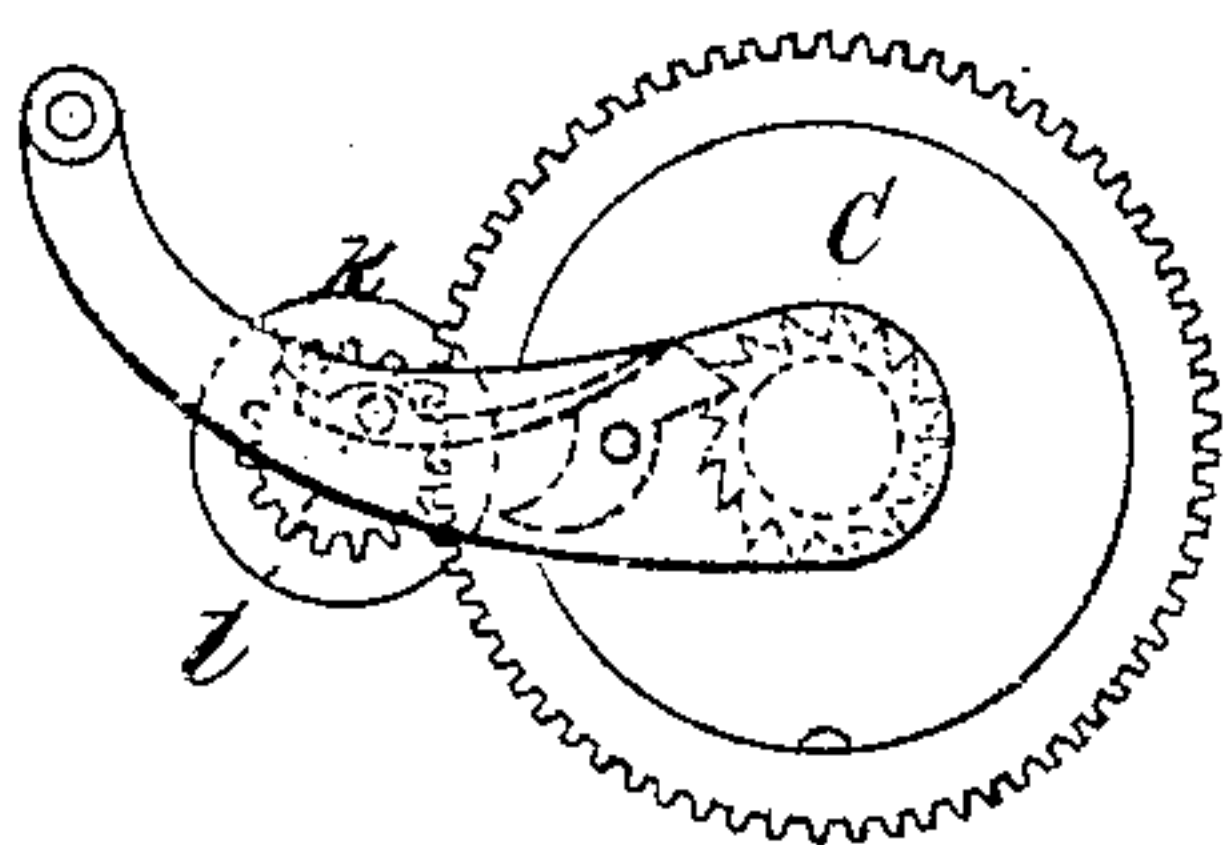


Fig. A.



Witnesses,

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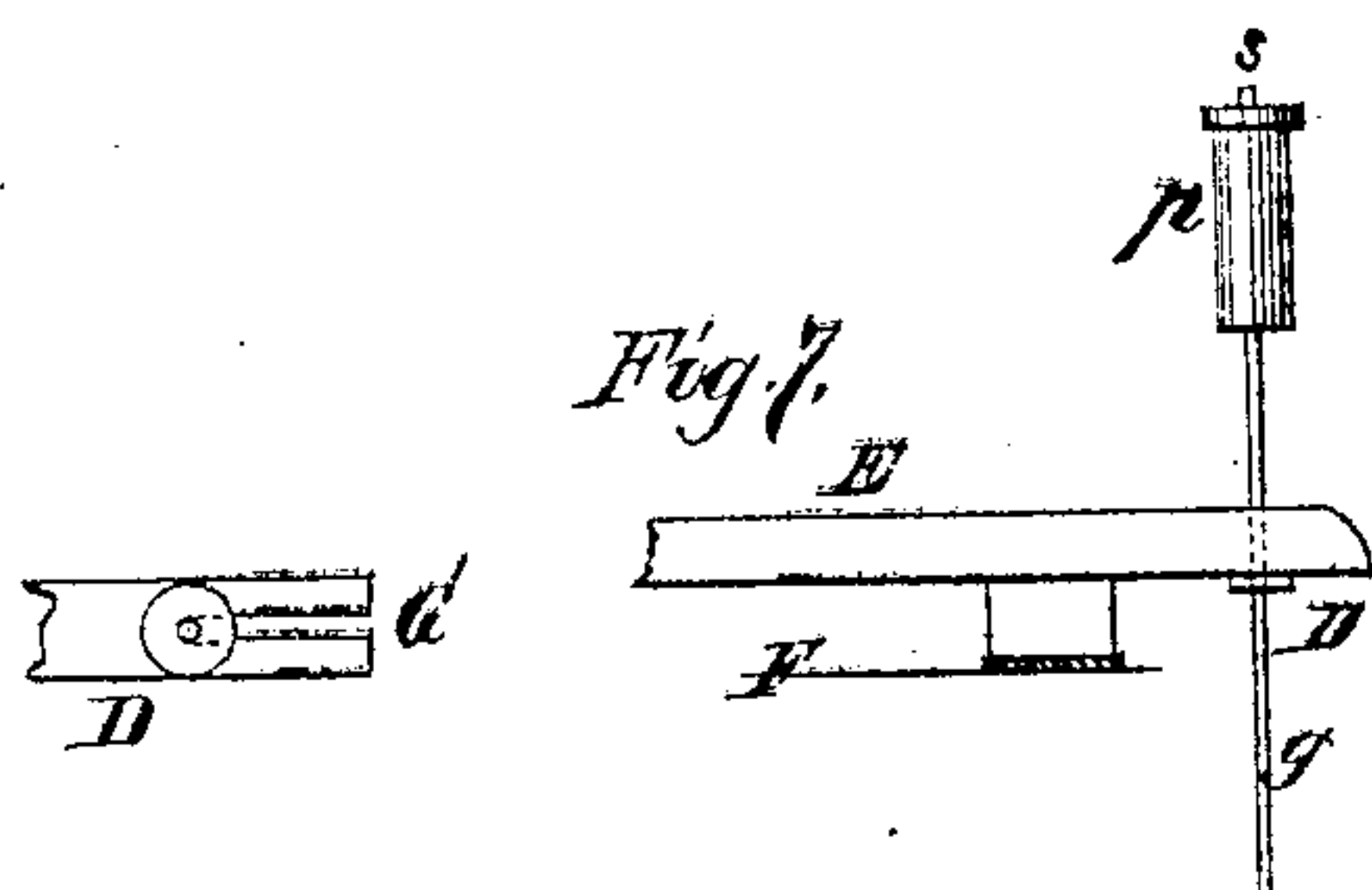


Fig. 5.

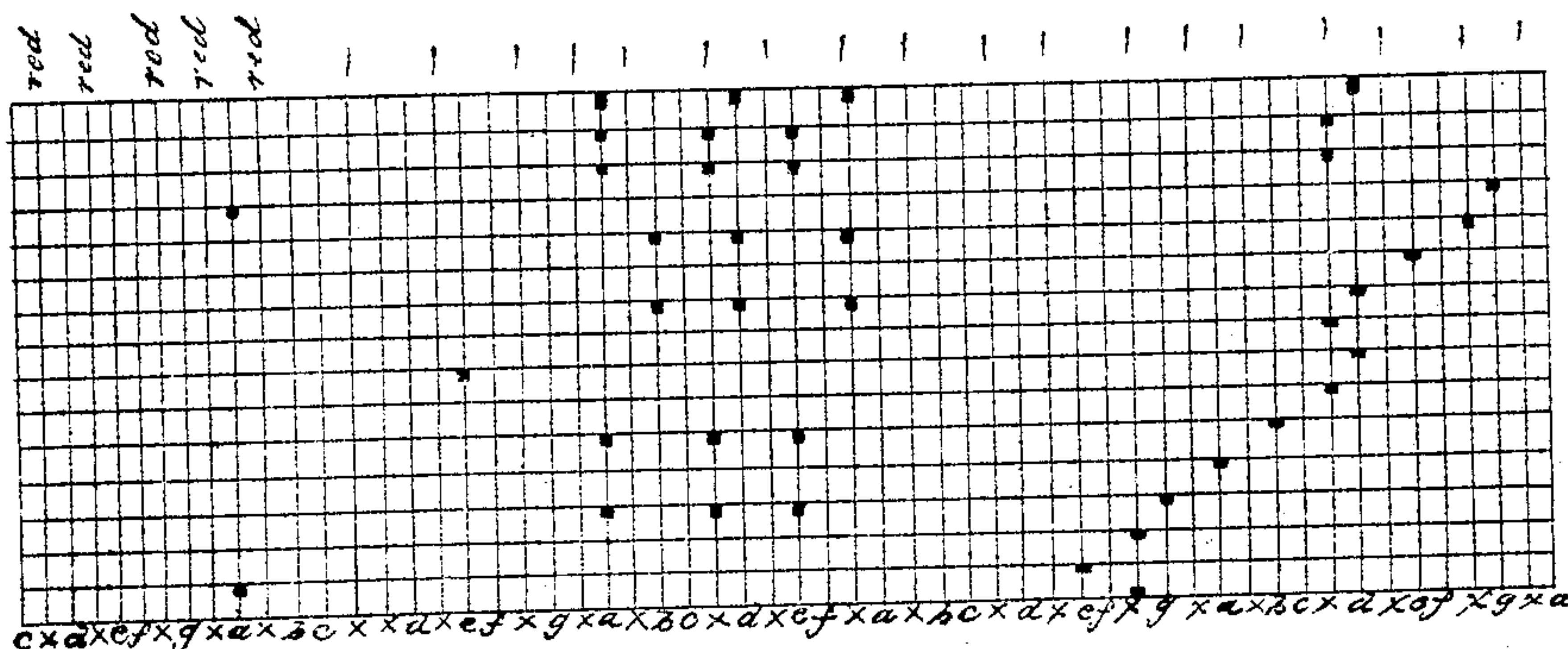
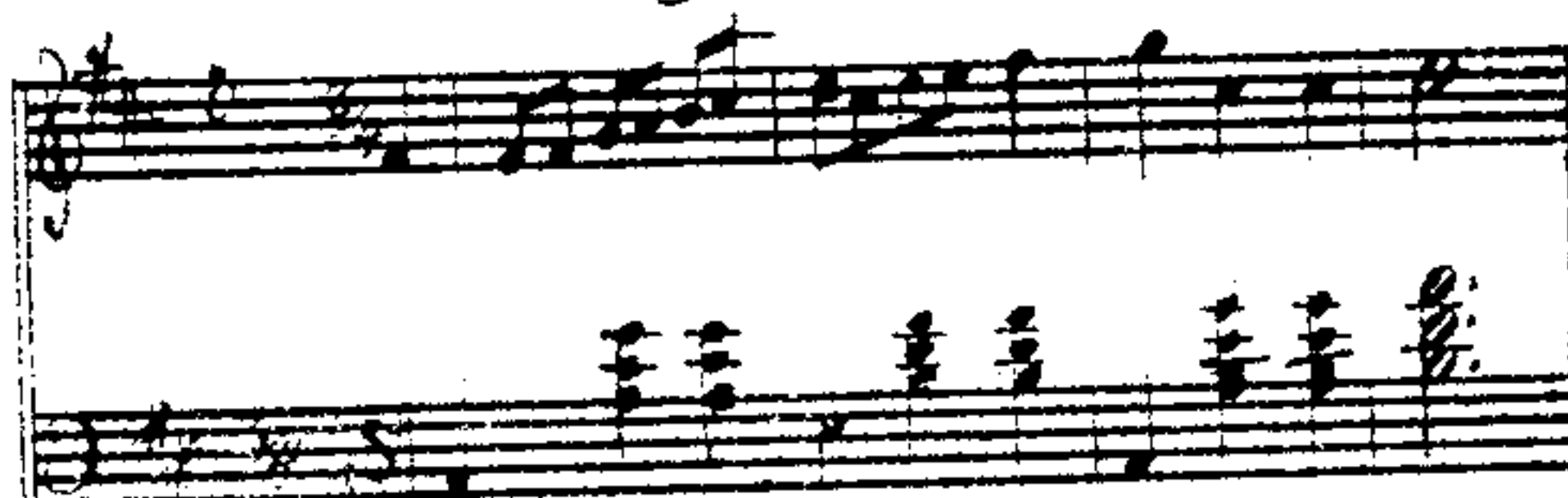


Fig. 6.



Witnesses.

Inventor.

C. F. Walker
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UNITED STATES PATENT OFFICE.

GUSTAV HEYDRICH, OF NEW ULM, MINNESOTA.

IMPROVEMENT IN PIANO AND ORGAN PRINTING ATTACHMENTS.

Specification forming part of Letters Patent No. **133,987**, dated December 17, 1872.

To all whom it may concern:

Be it known that I, GUSTAV HEYDRICH, of New Ulm, in the county of Brown and State of Minnesota, have invented a Music-Printing Attachment for Pianos, of which the following is a specification:

My invention relates to an improved music-printing attachment for piano-fortes, whereby the notes struck upon the piano may be reproduced or indicated by dots on a ruled sheet. The invention consists in the arrangement of devices forming the improved apparatus, as will be hereinafter described.

In the accompanying drawing, three sheets, Figure 1 is a front elevation of the apparatus; Fig. 2 is an end elevation of the printing apparatus proper; Fig. 3 is also an end elevation of the printing apparatus, including the keyboard, &c., in section; Fig. 4 is an end view of the spring-drum and connected gear-wheel; and Figs. 5, 6, and 7 relate to the printing devices.

The drum *a* incloses a coiled steel spring, which is wound around the drum-shaft by means of a crank, *b*, mounted loose on said shaft, but connected therewith by a pawl-and-ratchet mechanism. The revolution of the drum and wheel *a c* is arrested by a stop device, *d*, when its convex-edged portion comes in contact with the cog *i*. The gear-wheel *c* is attached to the drum *a* and meshes with the smaller gear *l*. Said gear *l* is on one end of a roller-shaft, *k*, which has a gear, *e*, on the other end. The latter communicates rotary motion to a worm-shaft and the regulator *h* attached to it through the medium of the small spur-wheel *f* and bevel-wheel *g*. Thus the spring-motor mechanism *b a c* rotates the roller *k*, while uniformity of action is secured by the regulator. *m* is a counter-roller of the roller *k*, and a third roller, *n*, is arranged immediately between them. A sheet of paper, *v*, is secured at its respective ends in the longitudinal grooves *o o* of rollers *k m* by suitable wooden strips. An elastic band, *z*, communicates motion from the roller *k* to the roller *m*; and hence when the former is rotated the paper strip *v* will be wound from it to the latter. The vertical rods *q* are arranged to rest at their lower ends on the rear ends of the piano-keys *B*, so that when a key is depressed its corresponding rod will be raised to come in

contact (at its upper end) with the paper *v*. To cause such contact to produce a visible impression I provide ink-receptacles *p* with wicks *s*, which are drawn through a hole in the covers thereof and secured by a cross-pin or otherwise. Thus constructed they form printing-types. As shown in Fig. 1, I arrange a pedal, *C*, having its fulcrum at *B'*, to act on the rod *q'*, which is at the right hand, or the last in the series. This serves to mark the time of the music on the paper *v*. Each rod *q* is provided with a leather-covered disk, *D*, Fig. 7, which acts as a shoulder to raise the damper *E* resting on the string *F*. Thus the damper will never be in contact with the string when a type, *s p*, is pressed against the paper *v* and roller *n*. *y*, Fig. 1, is a pawl, which may be caused to take into the notches of the wheel *c* and arrest its motion at any time by means of the armed rock-shaft *X* and push-knob or bar *W*.

The ruling of the paper and the style of printing are illustrated in Fig. 5. The notes, indicated by the dots, are reproduced, in the common style of written music, in Fig. 6. The red lines in Fig. 5 are for the semi-tones, the others for the full tones; and the length of the printed characters, as delineated, show eighth, quarter, half, and full notes, respectively.

The ink I employ in the hollow types *p* is composed of petroleum, tar, and lamp-black, in the proportion of seven parts of the first to one of the second ingredients, with a small quantity of the third to intensify the color. The ink will last for many years, and also prevent the destruction of the piano-cloth by moths or other insects.

What I claim as new is—

1. The combination of the rods *q*, hollow types *p s*, rollers *k m n*, and the spring-motor mechanism, as shown and described.

2. The time-pedal *C* and its printing-rod *q'*, in combination with the other rods *q* and the rollers *k m n*, as specified.

3. The ink for use in the hollow types, formed of the ingredients named, in about the proportions specified.

GUSTAV HEYDRICH.

In presence of—

C. T. CLOTHIER,
C. F. HELD.