

No. 607,789.

Patented July 19, 1898.

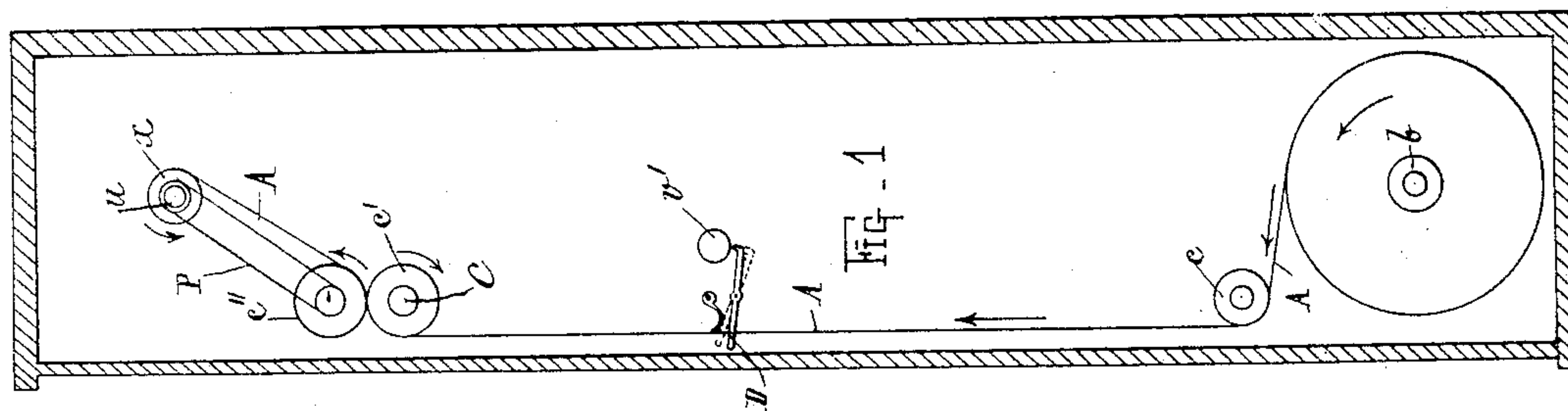
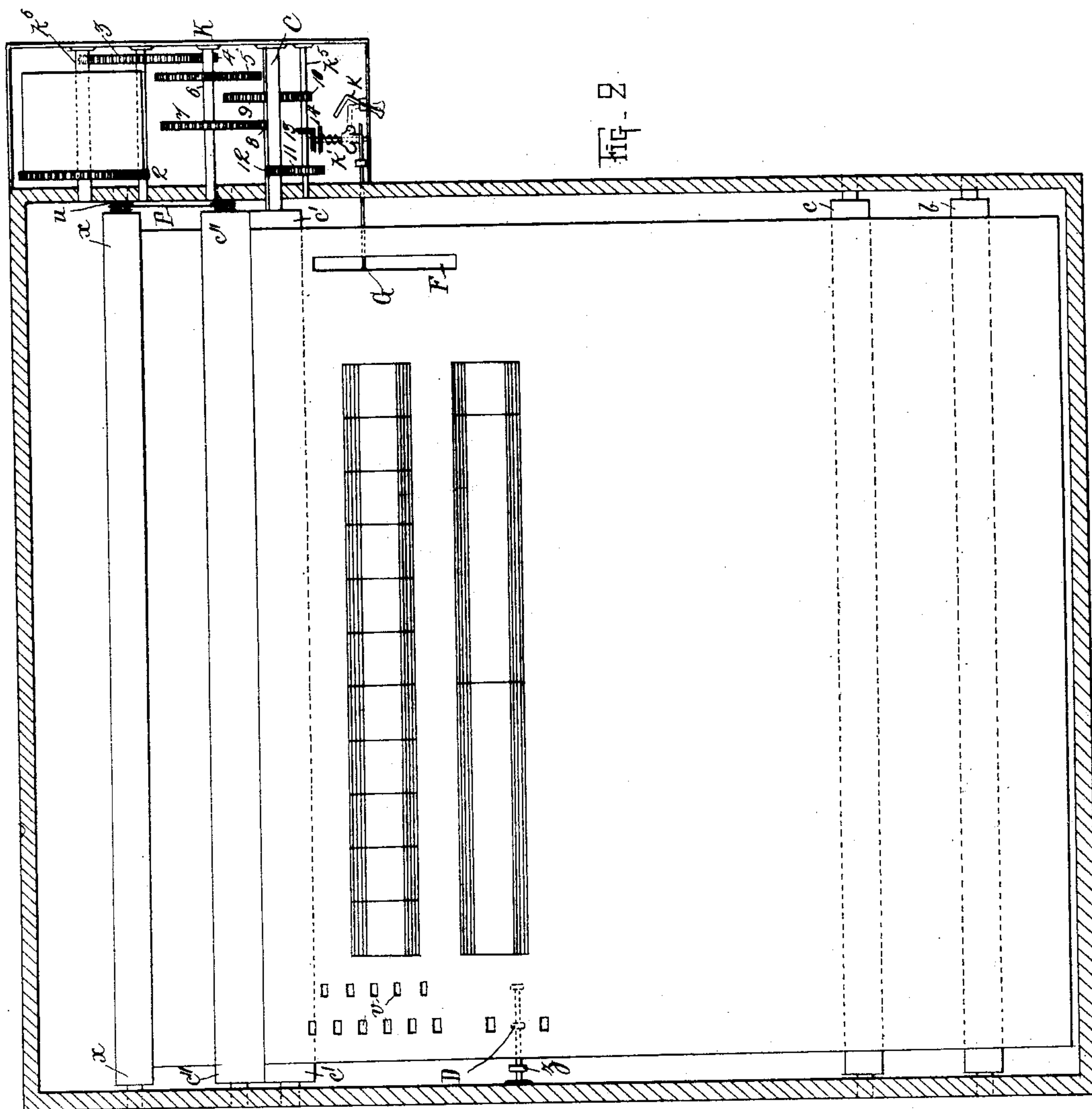
C. GERANDAL.

PRINTING OF MUSIC AND APPARATUS FOR EXPOSING SAME TO READERS.

(Application filed Dec. 11, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES
Chas. Smith
Carrie Brunner

INVENTOR
Charles Gerandal
By George H. Smith

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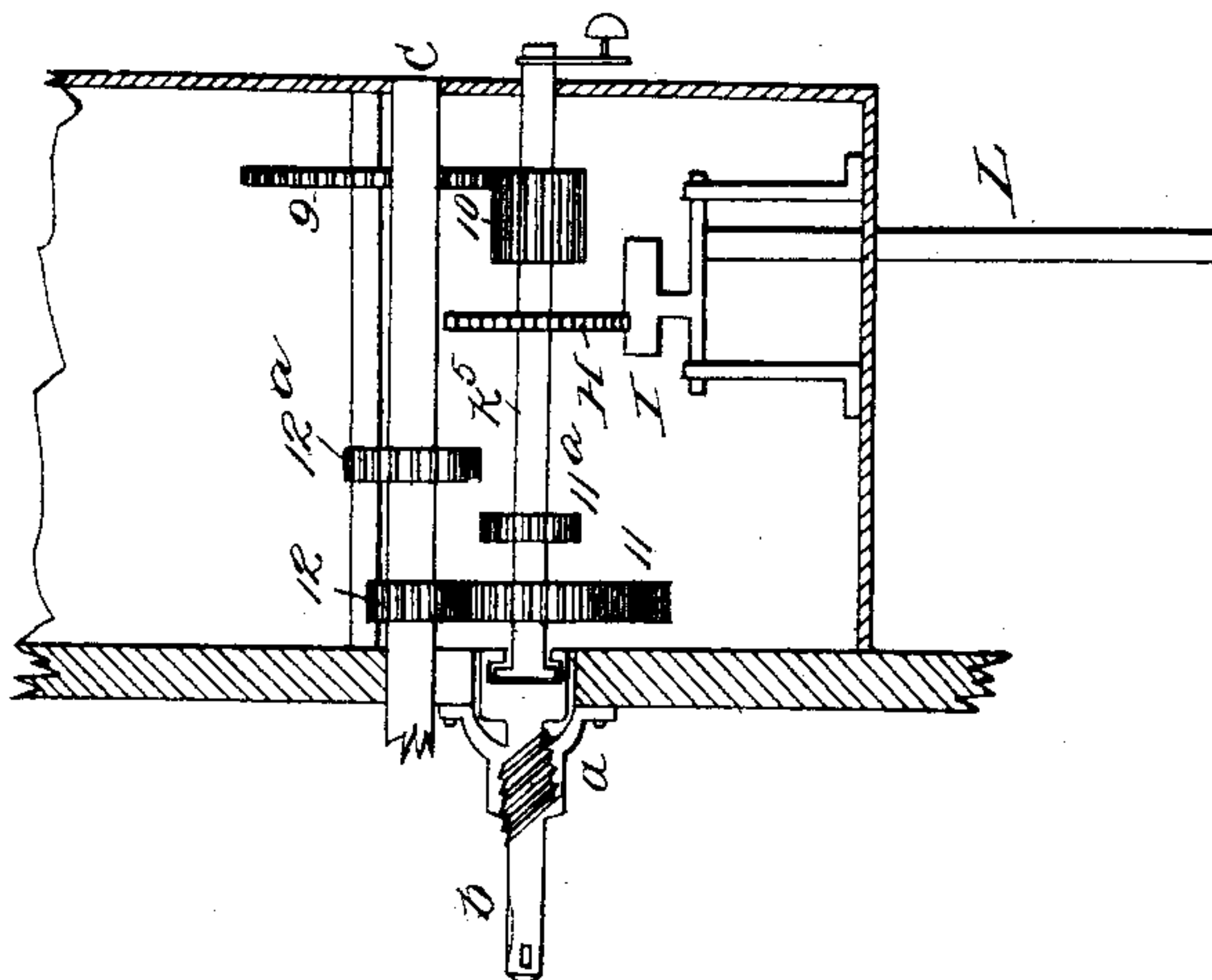
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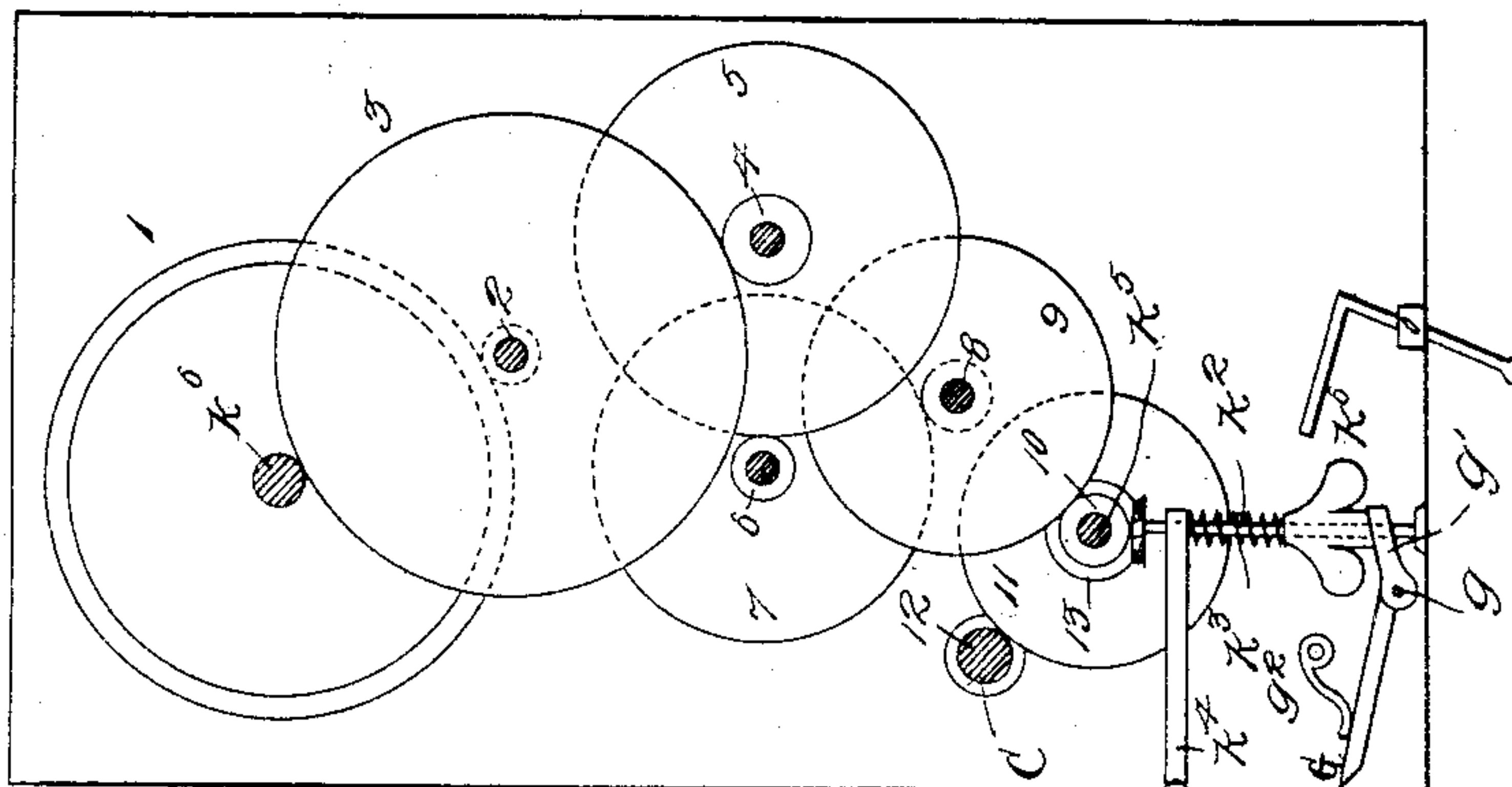
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2 Sheets—Sheet 2.

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WITNESSES

Garrie Brennass.

INVENTOR

Charles Geraldine,
my dear husband
Lily

UNITED STATES PATENT OFFICE.

CHARLES GERANDAL, OF MUSTAPHA, FRANCE.

PRINTING OF MUSIC AND APPARATUS FOR EXPOSING SAME TO READERS.

SPECIFICATION forming part of Letters Patent No. 607,789, dated July 19, 1898.

Application filed December 11, 1897. Serial No. 661,587. (No model.) Patented in France March 19, 1897, No. 265,410.

To all whom it may concern:

Be it known that I, CHARLES GERANDAL, a citizen of the Republic of France, residing at Mustapha, in the said Republic of France, have invented certain new and useful Improvements in the Printing of Music and Apparatus for Exposing the Same to the Reader; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention has been patented in France, No. 265,410, March 19, 1897.

This invention relates to the printing of music upon a surface (or area) proportionate or nearly proportionate to the time within which the music is to be read and is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical cross-sectional elevation of an apparatus embodying my invention. Fig. 2 is a vertical lengthwise sectional elevation of the same. Fig. 3 is a detail view, on an enlarged scale, of the clockwork which actuates the band or strip. Fig. 4 shows a modification.

The band whereon the music is printed is provided with perforations or slots or studded with projections, as at *v*, Fig. 2, adapted to operate a spring-actuated lever or click *D*, which may actuate a bell or simply oscillate in a manner rendered visible to the reader by the projecting rod *z*.

It will be seen on referring to Figs. 1 and 2 of the accompanying drawings, which represent the improved device by way of example only, that the music, which is wound on a wood or metal roller *b*, suitably mounted in the case of the apparatus, first passes over one cylinder *c* and then between two other metal cylinders *c'* *c''*, likewise mounted in said frame, surrounded by or covered with india-rubber. The cylinder *c'*, mounted on a shaft *C*, is driven by clockwork *K* and carries the band or strip of music *A* along with it as it revolves. After passing in front of the reader the said strip of music is gradually wound upon a cylinder *x*, which is set in mo-

tion by a pulley *u*, which is driven by a pulley on the cylinder *c''* by a strap *P*. The speed of the cylinder *c'* is so timed as to impart motion to the music-strip during the space of time within which the music is to be read off.

The slots, perforations, or projections *v* of the music-strip on or in the body of the music impart to the device *D* motion which is visible to the reader and which may be caused to ring a call-bell or the like, such as *v'*, at each time division or bar of the music. In the bars which are to be played slower more space should be left between the perforations, slots, or projections, so that the reader may follow the music at the rate of "time" fixed by the composer.

The clockwork is provided with a releasing device or part to be used in starting and arresting the mechanism. This may consist of a simple lever *k*, arranged to arrest the movement of the fly *k'* of said clockwork. The fly is splined upon an upright shaft *k²*, and a helical spring *k³* encircles the shaft between the fly and the bearing *k⁴*. The shaft is geared by bevel-wheels 13 14 to one of the shafts *k⁵* of the clockwork, whose train of gears and pinions 1 to 12 connects the driving-shaft *k⁶* with the roller-shaft *C*.

Where one or more bars have to be either played slowly or quickly, instead of bringing the perforations, slots, or projections *v*, Fig. 2, actuating the click *D*, which determines the time of the music, closer together or providing wider spaces between them (as the case may be) a special slot, projection, or perforation, such as *F*, may be caused to operate the click *G* for this purpose, such click being adapted to control the regulator, whereby the speed of the clockwork will accordingly be varied.

I prefer to make the click *G* a rock-arm on a shaft *g*, which carries another rock-arm *g'*, lying under the lower end of the fly. When the click *G* is thrown downward by its spring *g²*, the arm *g'* lifts the fly, thereby compressing the helical spring *k³* and causing greater friction between the fly and the arm, which tends to reduce the speed of the fly. The rate of speed or time of the music may, however, be varied by means of gear-wheels only instead of through the regulator just referred to.

This modification is indicated in Fig. 4, where the shaft C has more than one pinion of different diameters 12 and 12^a and the shaft k⁵ has two wheels 11 and 11^a, one adapted to mesh with pinion 12 and the other, when the shaft is shifted lengthwise, with the pinion 12^a. The shifting of the shaft is accomplished by a stem b, having a screw-thread of coarse pitch working in a nut a, secured upon the casing of the clockwork. The stem engages with the end of the shaft k⁵, so that the axial movement given to the stem when it is rotated in the nut is imparted to the shaft and causes it to be shifted lengthwise, thereby disengaging one pair of wheels and causing the other pair to mesh. The shaft k⁵ may have an escapement-wheel H, with which engages a pallet I, vibrated by a pendulum L, taking the place of the fly. This arrangement will impart different rates of speed to the cylinders or rollers and will be of assistance to beginners by permitting them to take more time to decipher the music.

It is not absolutely necessary for the music to be printed within an area exactly proportional to the time within which it is to be played, all that is required being that the bars should not be too much at variance with the perforations or projections marking the time on or in the strip or band, or simple marks may be made on such band to indicate where the holes, slots, or projections should be formed.

Instead of music literary matter may similarly be printed, in which case indentations may serve to time the diction, breathing-spaces being marked, say, by a hyphen corresponding to the notch or depression which is to actuate the click.

It should be stated that the drawings are merely illustrative of one mode of carrying out my invention, and I do not herein claim the specific apparatus therein shown.

I claim—

1. A strip of music or other readable matter, printed within areas proportionate, or nearly proportionate, to the periods of time within which the music should be read off, and on a surface provided with projections and depressions or holes, either on one side or in the body of the music; such projections, depressions or perforations being spaced out according to the "time" or number of bars of the music.

2. An apparatus for moving strip-music provided with irregularities such as projections, perforations or depressions, consisting of mechanism for feeding said strip in either direction at will, clockwork for driving said feed mechanism, means for varying the speed of the clockwork, and a visible or audible alarm adapted to be operated by the irregularities of the strip at predetermined times, substantially as described.

3. An apparatus for moving strip-music provided with irregularities such as projections, perforations or depressions, consisting of mechanism for feeding said strip, clockwork for driving said feed mechanism, and means whereby the speed of the clockwork will be governed by predetermined irregularities in the strip, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand.

C. GERANDAL.

Witnesses:

CHAS. E. GRELLET,
M. DILLON.