

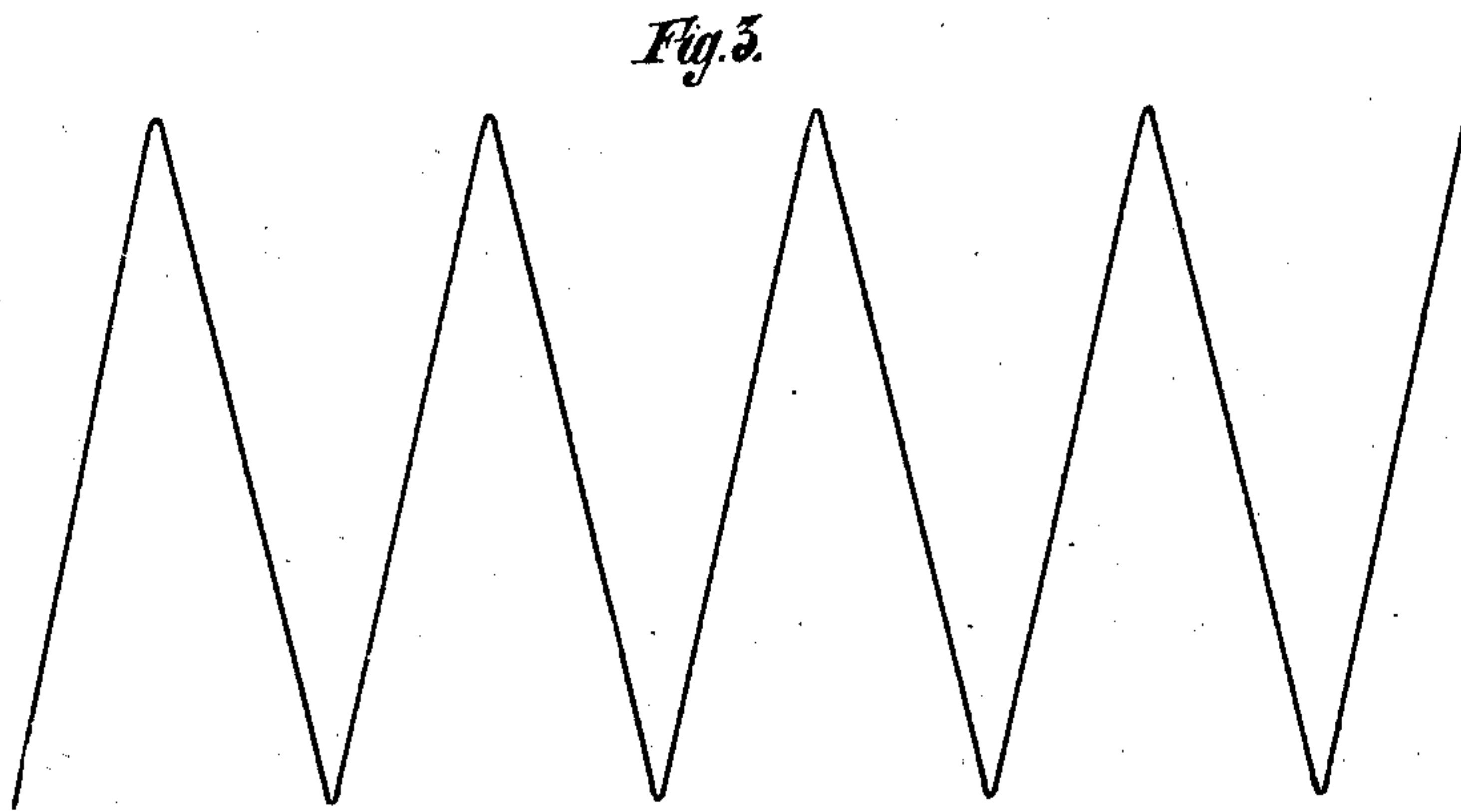
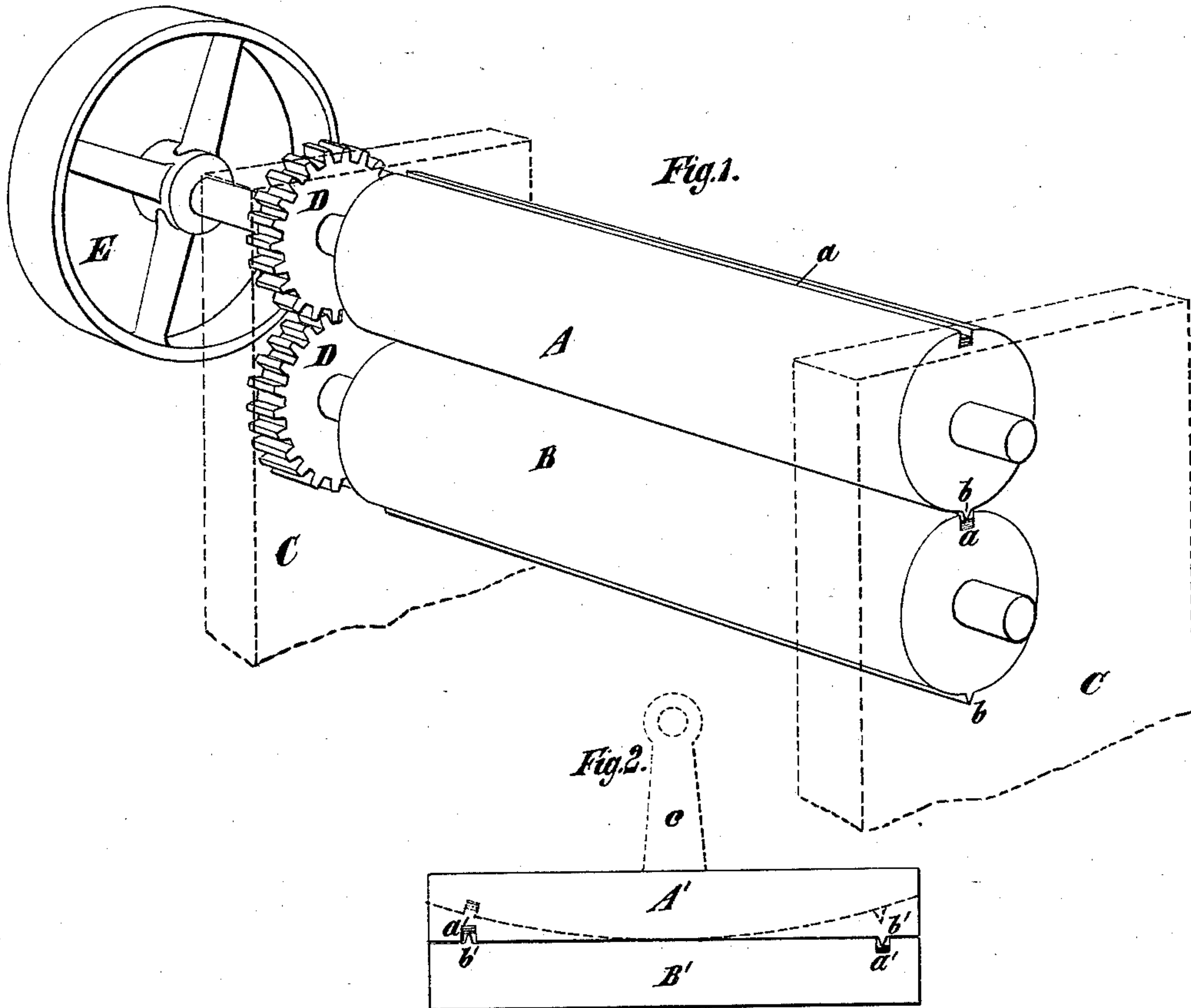
(No Model.)

J. MORGAN.

MACHINE FOR CREASING SHEET MUSIC.

No. 308,624.

Patented Dec. 2, 1884.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES MORGAN, OF BROOKLYN, NEW YORK, ASSIGNOR TO J. STEWART MORGAN, OF SAME PLACE.

MACHINE FOR CREASING SHEET-MUSIC.

SPECIFICATION forming part of Letters Patent No. 308,624, dated December 2, 1884.

Application filed April 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES MORGAN, of Brooklyn, in Kings county, and the State of New York, have invented a certain new and useful
5 Improvement in Creasing Music-Sheets and Like Articles, of which the following is a specification.

The principal object of my improvement is to provide a simple apparatus for creasing
10 music-sheets such as are used in mechanical musical instruments, so as to enable them to fold readily alternately in reverse directions.

The improvement consists in the combination of two dies provided alternately with
15 equidistant ribs and grooves adapted to act on the music-sheet or other article transversely to the length thereof, and guides at the ends of the dies for confining the music-sheet or article laterally. The grooves are preferably
20 furnished with moistened, soft, or yielding material.

In the accompanying drawings, Figure 1 is a perspective view of an apparatus embodying my improvement. Fig. 2 is an edge view
25 of dies of modified form embodying my improvement, and Fig. 3 is an edge view of a creased and folded music-sheet.

Similar letters of reference designate corresponding parts in both figures.

30 Referring first to Fig. 1, A and B designate two rotary dies or rollers arranged to operate in close proximity to each other. In this instance these dies are of such size that in each rotation they will make two creases at the desired distances apart in a music-sheet passed
35 between them. In other words, one-half of the circumference of each die is equal to the spaces which are desired between the creases. These dies have alternately equidistant
40 grooves *a* and ribs *b*. They severally have, as here shown, but one groove and one rib; but obviously they can be made larger, so as to have a number of each, and yet have the same located at corresponding distances apart.
45 The rib of each die or roller is adapted to work into the groove of the other, and in doing so forms a crease. It will be readily seen that, owing to the alternate arrangement of the ribs and grooves, the rib of one die or
50 roller first forms a crease in one side of the music-sheet, and then the rib of the other die

or roller forms a crease in the other side of the music sheet, and so on, the creases extending transversely to the length of the sheet. These dies or rollers may be made of iron, 55 steel, brass, or other suitable material, and their ribs may be of V shape or any other appropriate form. As here shown, the journals of these dies or rollers are supported in side frames, C, (delineated by dotting,) and adapted 60 to form guides for the music-sheet, so as to insure its passing in a straight line between the dies or rollers, and the creases being at right angles to its length. Gear-wheels D may advantageously be employed to cause the dies or 65 rollers to rotate in proper relative time, so that their ribs and grooves will operate in conjunction with each other. Any suitable means—such, for instance, as screws and springs acting on bearings arranged in slots or 70 housings—may be employed to vary the pressure of the upper die or roller, A, upon the lower. By making the teeth of the gear-wheels of extra length they will be caused to remain in engagement during the adjustment 75 of the upper roller in varying its pressure on the lower. The upper die or roller may be supported in a hinged frame, so as to provide for raising it from a music-sheet whenever desirable. Either die or roller may have on one 80 of its journals a pulley, E, adapted to receive a belt whereby to drive it and its fellow. I have shown such a pulley on one of the journals of the upper die or roller, A. These dies or rollers may serve to feed the music- 85 sheet along, or independent rollers may be provided for this purpose.

In Fig. 2 I have shown flat dies A' B', which may be made of the same materials as the others heretofore described. Each has a 90 groove, *a'*, and rib *b'*, alternately arranged, and although each has in the present instance but one groove and one rib, these may be increased in number. The upper die, A', may be reciprocated, as in a press, by a crank or 95 eccentric or otherwise, and where it has but one groove and one rib it may have its face chamfered off, as indicated by dotted lines, and it may then be rocked by means of a lever, *c*, (shown also by dotted lines,) and a crank con- 100 nected therewith. Indeed, the upper die may be composed of sections operating independently

of each other with a reciprocating motion. In all of these modifications the music-sheet will have an intermittent feed, which may be accomplished by rollers actuated by a pawl and ratchet or otherwise. Side pieces are employed for guiding the upper die and the music-sheet.

A music-sheet may by my improvement be creased alternately on opposite sides, so as to fold first on one side and then on the other side, as shown in Fig. 3, into compact form. The improvement may be useful for similarly creasing other articles.

I have shown the grooves of the dies or rollers as of square form. They preferably will be made of a different form from the ribs, and then may be advantageously filled with india-rubber or other soft material. This material will prevent damage being done to the paper in forming the creases.

I may use a hollow die or roller having slots

instead of grooves and packed with a yielding material held in place by an inner roller.

The yielding material may consist of felt, and may be saturated with moisture to soften the paper for the creasing operation.

The grooves of the other dies herein described may be of the same form and have yielding material similarly combined with them.

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

In an apparatus for creasing music-sheets and other articles, the combination of dies provided with ribs and grooves, the latter being furnished with moistened, soft, or yielding material, substantially as specified.

JAMES MORGAN.

Witnesses:

T. J. KEANE,

JAMES R. BOWEN.