

No. 760,235.

PATENTED MAY 17, 1904.

M. A. McKEE.

PROCESS OF EVENING THE FACES OF STEREOTYPE OR ELECTROTYPE PLATES  
TO RENDER THEM CAPABLE OF PRODUCING UNIFORM IMPRESSIONS.

APPLICATION FILED MAR. 18, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

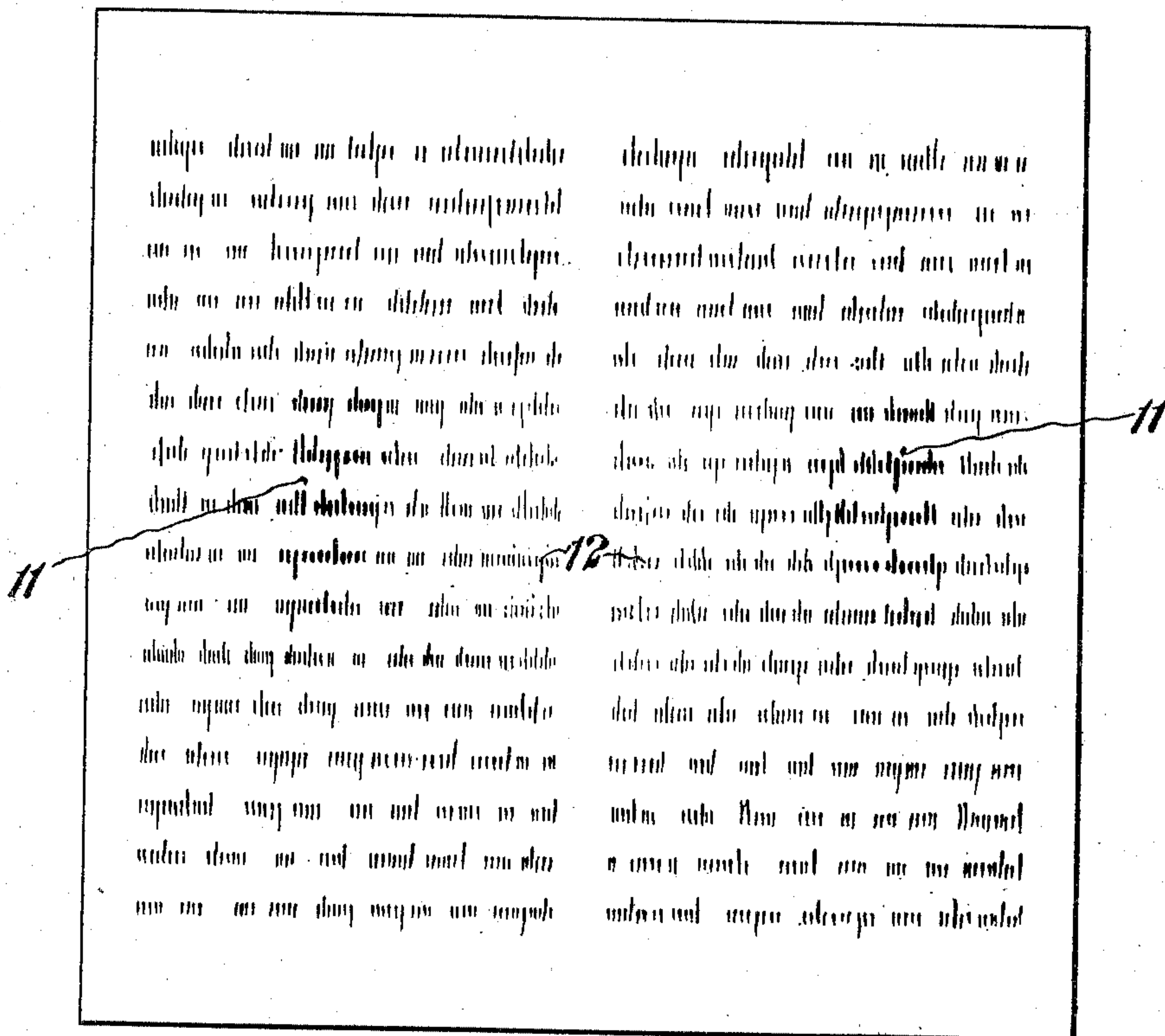


Fig. 2.

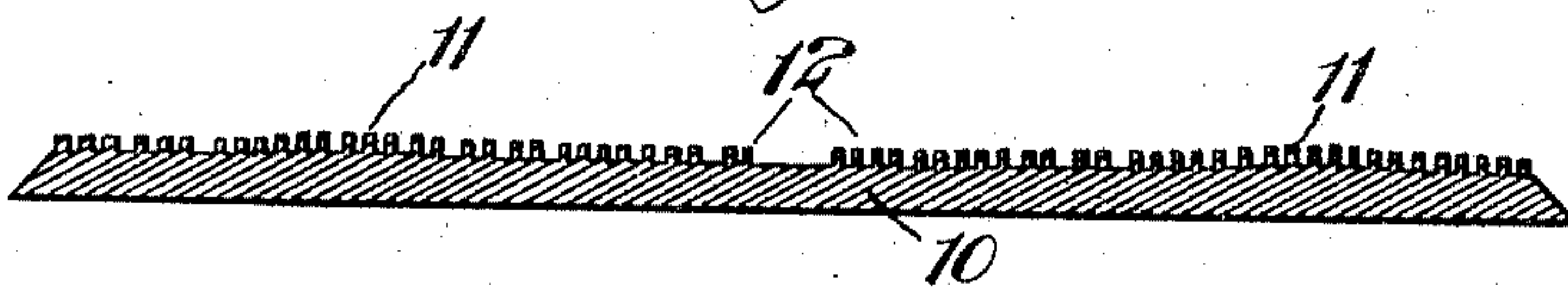
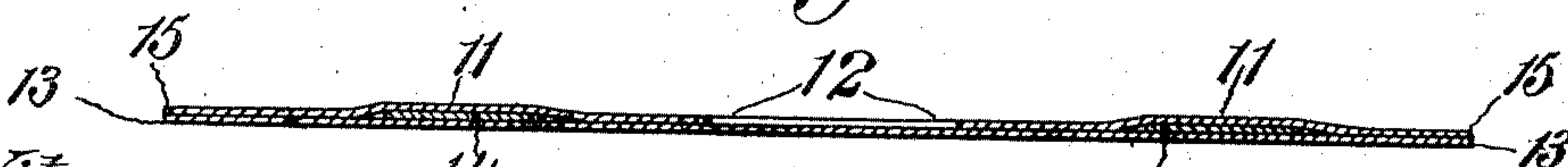


Fig. 3.



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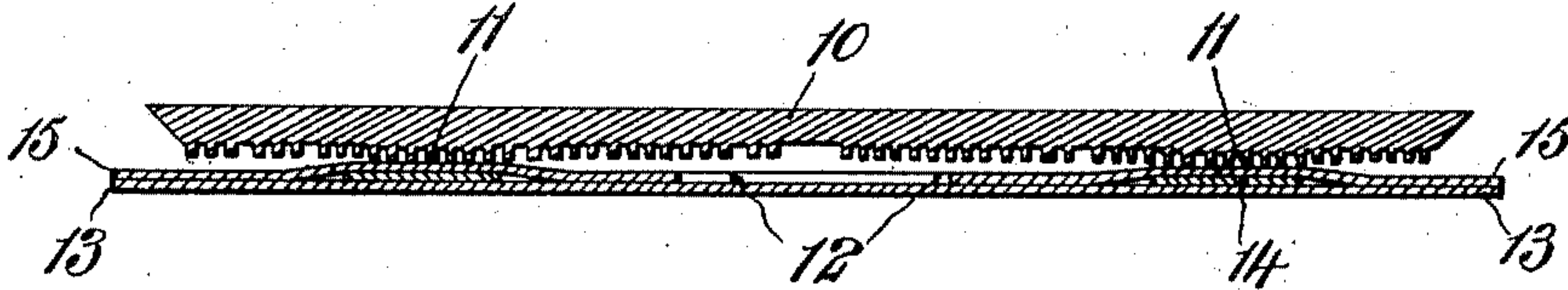
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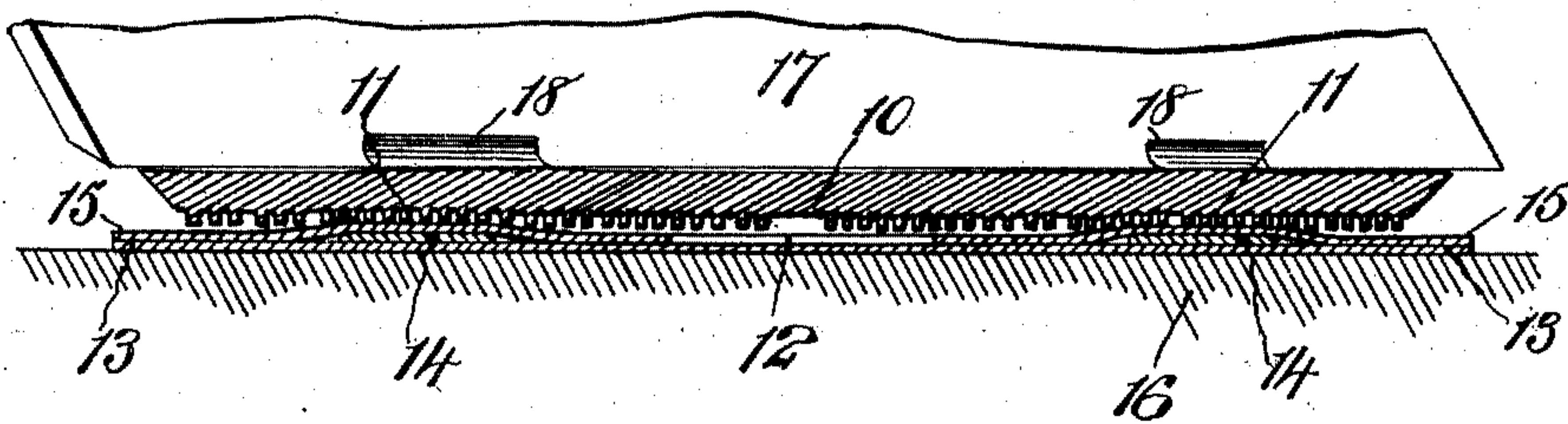
NO MODEL.

2 SHEETS—SHEET 2.

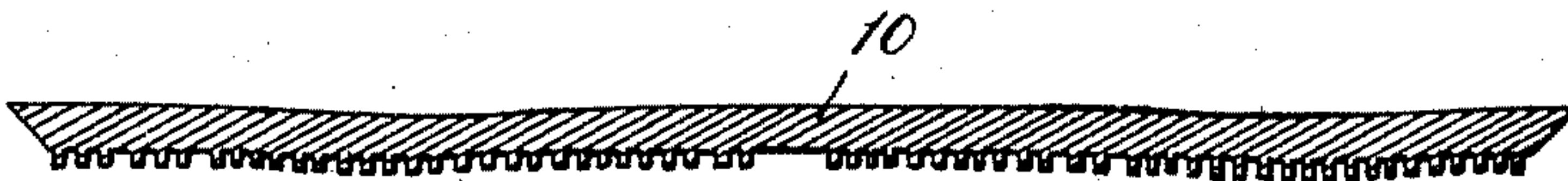
*Fig. 4.*



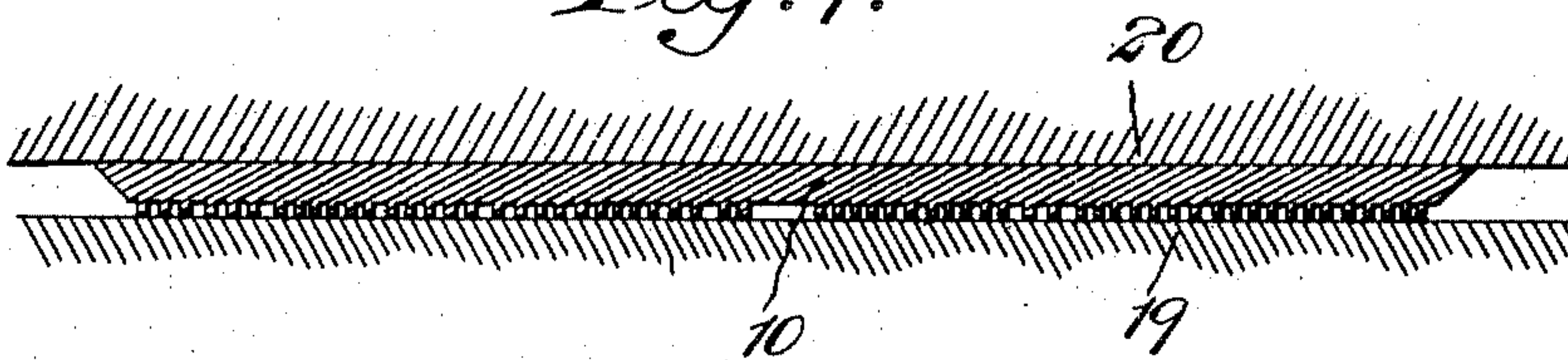
*Fig. 5.*



*Fig. 6.*



*Fig. 7.*



*Fig. 8.*



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# UNITED STATES PATENT OFFICE.

MILTON A. McKEE, OF NEW YORK, N. Y., ASSIGNOR TO C. B. COTTRELL & SONS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

PROCESS OF EVENING THE FACES OF STEREOTYPE OR ELECTROTYPE PLATES TO RENDER THEM CAPABLE OF PRODUCING UNIFORM IMPRESSIONS.

SPECIFICATION forming part of Letters Patent No. 760,235, dated May 17, 1904.

Application filed March 18, 1904. Serial No. 198,864. (No model.)

*To all whom it may concern:*

Be it known that I, MILTON A. McKEE, a citizen of the United States, and a resident of the borough of Manhattan, in the city and State of New York, have invented a new and useful Process of Evening the Faces of Stereotype and Electrotpe Plates to Render Them Capable of Producing Uniform Impressions, of which the following is a specification.

10 Stereotype and electrotpe plates of type matter, as well as those containing pictorial illustrations, in the condition in which they are ordinarily delivered by the manufacturer to the printer are generally or very often more  
15 or less defective in that their faces are so uneven that the printed impressions which they produce have some parts unnecessarily dark or heavy, while other parts are objectionably light or pale. These defects are known in the  
20 trade as "sinks" or "shrinks." In such defective plates the parts which produce the darker or heavier impression are commonly thicker than the parts which produce the lighter or paler impression, the backs of the  
25 plates being even or plane, or nearly so, and the sinks or shrinks being only or chiefly on the face.

The object of the present invention is to cure these defects, and to this end the said invention is performed in the following manner: There is first obtained, by laying together one upon another two or more sheets or layers of paper or like fabric, a matrix the face of which corresponds exactly or approximately with  
35 the face of the plate to be treated, its higher or less sunken portions corresponding with the higher or more prominent portions of the face of the plate and its lower or more sunken portions corresponding with the lower or less  
40 prominent portions of the face of the plate. The matrix thus obtained and the plate to be treated are then placed face to face with the more prominent parts of the two opposite each other and the less prominent parts of the two  
45 opposite each other and while they are so placed together are laid on the bed of a shaving-machine with the matrix in register with

the face of the plate, the back of the plate being upward, and while they are so laid the back of the plate is subjected to a shaving operation in  
50 which by the plowing nature or pressure of the shaving-knife when removing the shave of metal from the back of the plate every part of the face of the plate through the yielding nature of the metal is brought into close con-  
55 tact with the face of the matrix, so that the face of the plate becomes for the time the counterpart of the face of the matrix and those portions of the back of the plate opposite the higher portions of the matrix are brought to  
60 greater prominence than the other parts, and consequently more metal is cut away and removed by the act of the shaving operation than at such parts on the back of the plate where  
65 the plate sprung down into the less or low parts of the matrix. The shaves may consist of a single cut or of two or more light successive cuts. After the shaving operation and its being relieved from the shaving pressure the plate by its own resiliency springs back  
70 so far toward its original condition that its face resumes its original form containing its original sinks or shrinks, while its back so nearly corresponds with its face that the thickness of the plate measured to the face of the  
75 type matter is uniform in all parts. The plate thus reduced to uniform thickness is then placed without the matrix between two perfectly parallel smooth surfaces, such as those of the bed and follower of a heating box or  
80 press, which are heated to a suitable degree of temperature to so soften its metal as to render it sufficiently flexible, and is there subjected to such pressure as to render it perfectly even both on its face and back, in which  
85 condition it will remain after cooling, when it is ready for printing.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a face view of a printed sheet  
90 obtained from a defective plate, showing the lighter and darker impressions in different parts of the imprint. Fig. 2 is a transverse section of the defective plate, which gives such



an imprint as is shown in Fig. 1; Fig. 3, a transverse section of a matrix, consisting of sheets or layers of paper placed together; Fig. 4, a transverse sectional view of the plate and matrix laid together face to face preparatory to shaving. Fig. 5 represents in transverse section the matrix and plate face to face between the bed and knife of a shaving-machine, showing the plate pressed by the knife against the higher parts of the matrix and as having shavings taken from its thicker parts. Fig. 6 represents the section of the plate after the shaving operation, but before the flattening which constitutes the finishing operation; Fig. 7, a sectional view of the plate alone and of the flat bed and follower of a heating box or press between which the plate is flattened; Fig. 8, a section of the finished plate.

In Figs. 1 and 2 the too-heavy parts of the imprint and the higher parts of the face of the plate 10 which produce it are both designated by the reference-numerals 11, and the too-light parts of the imprint and the lower parts of the face of the plate which produce them are designated by the numerals 12. The parts of the face of the matrix which correspond with those of the plate are designated by similar numerals. The layers of which the matrix is composed are preferably made from proofs taken on thin paper from the defective plate, using one of said proofs 13 as a base and first building up by pasting on a layer or layers consisting of the dark portion or portions cut out from one or more of other such proofs and afterward overlaying and pasting over the whole with one or more of other such proofs from which the lighter parts have been cut out and thrown aside, the number of said layers of each kind, one or more, depending on the degrees of unevenness of impression produced by the different parts of the defective plate. The example which I have selected for illustration, (given in Figs. 3, 4, and 5,) consists of only one layer of each kind, that affording better facility for clear representation, the layer next the base consisting of two pieces 14 cut from one proof-sheet and corresponding with the dark portions 11 on the representation, Fig. 1, of the proof-sheet, and the upper layer being formed from another proof-sheet 15, from which the light parts (indicated by 12 in Fig. 1) have been cut out, there being three layers in all. When the matrix thus obtained and the plate to be treated are registered face to face, as shown in Fig. 4, and so placed together in the shaving-machine between the bed 16 and the knife 17 thereof and run through said machine, the plowing and pressing action of the knife on the back of the plate causes the plate to bend in conformity to the cut-out or lower parts of the face of the matrix, forcing the less prominent parts of the face of the plate into the less prominent parts of the face of the matrix, and there-

by reducing the want of prominence in those parts of the face of the plate, while the parts of the plate in which the face has greater prominence are held up by the higher parts of the face of the matrix and prominences are thereby produced on the back of the plate. The knife being perfectly adjusted relatively to the bed of the machine only takes off in shavings 18, as shown in Fig. 5, enough of those prominences on the back to reduce those parts of the plate which contain them to the same thickness as the other parts; but though thus reduced to uniform thickness the plate after its release from the pressure of the shaving-knife is caused by the resiliency of its metal to spring back so far toward its original condition that its face resumes its original form, as illustrated by Fig. 6, in which it will be seen that although the plate is of uniform thickness it is in a more or less wavy condition. That condition is corrected by the final stage of the process, which consists in the pressure between the two heated smooth flat parallel surfaces 19 20, Fig. 7, which brings the plate in all parts, both its printing-surface and its back, to a level condition for perfect and uniform printing and renders unnecessary any form of underlay under the plate or overlay on the impression-surface of the cylinder.

I have only thought it necessary to illustrate and describe my invention in detail as applied to flat plates; but it will be obvious to those skilled in the art that it may be adapted to the evening or taking out of the sinks or shrinks from curved plates, all that is required for such adaptation being to substitute for the beds, matrix, and follower of flat form represented beds, matrix, and follower having curvatures corresponding with those of the plate and to substitute for the shaving-knife represented a knife having a movement conforming to the latter curvatures.

What I claim as my invention is—

1. In a process of treating uneven printing-plates for evening their faces, the improvement which consists in subjecting the plate to a shaving operation while its face is in contact with a matrix having in its face more and less prominent parts corresponding with the more and less prominent parts of the face of the plate.

2. In a process of treating uneven printing-plates for evening their faces, the improvement which consists in preparing from a printed proof of the plate a matrix with more and less prominent parts corresponding with the more and less prominent parts of the face of the plate and subjecting the plate to a shaving operation with its face in contact with the face of said matrix.

3. In a process of treating uneven printing-plates for evening their faces, the improvement which consists in placing the plate with



its face in contact with a matrix in which are more and less prominent parts corresponding with the more and less prominent parts of the face of the plate and while in such contact  
5 subjecting the plate while it is resting against and registered to the face of the matrix to a shaving operation on its back.

4. In a process of treating uneven printing-plates for evening their faces, the improve-  
10 ment which consists in placing the plate with its face in contact with a matrix in which are more and less prominent parts corresponding with the more and less prominent parts of the face of the plate and while in such con-  
15 tact subjecting the back of the plate to the action of a shaving-knife which at the same time forces the face of the plate to form the counterpart of the matrix and also shaves the back of the plate.

20 5. The process of treating uneven printing-plates for evening their faces which consists in placing the plate with its face in contact with a matrix in which are more and less prominent parts corresponding with the more  
25 and less prominent parts of the face of the plate, then while in such contact subjecting the plate at the same time to pressure against

the matrix by the act of a shaving operation on its back, and afterward without the said matrix subjecting the plate to pressure be- 30  
tween two parallel surfaces.

6. The process of treating uneven printing-plates for removing sinks or shrinks from their faces, which consists in placing the plate  
35 with its face in contact with a matrix in which are more and less prominent parts corresponding with the more and less prominent parts of the face of the plate, then while in such contact subjecting the face of the plate  
40 at the same time to a pressure against the matrix by an act of shaving metal from its back, and afterward subjecting the plate with-  
out the matrix to pressure and heat between two parallel surfaces, said process producing a  
45 plate of uniform thickness with even face and back.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 17th day of March, 1904.

MILTON A. McKEE.

Witnesses:

FREDK. HAYNES,  
HENRY THIERNE.