

No. 613,219.

Patented Oct. 25, 1898.

A. S. ALLEN.

TYMPAN SURFACE FOR PRINTING PRESSES.

(Application filed Aug. 15, 1898.)

(No Model.)

Fig. 1.

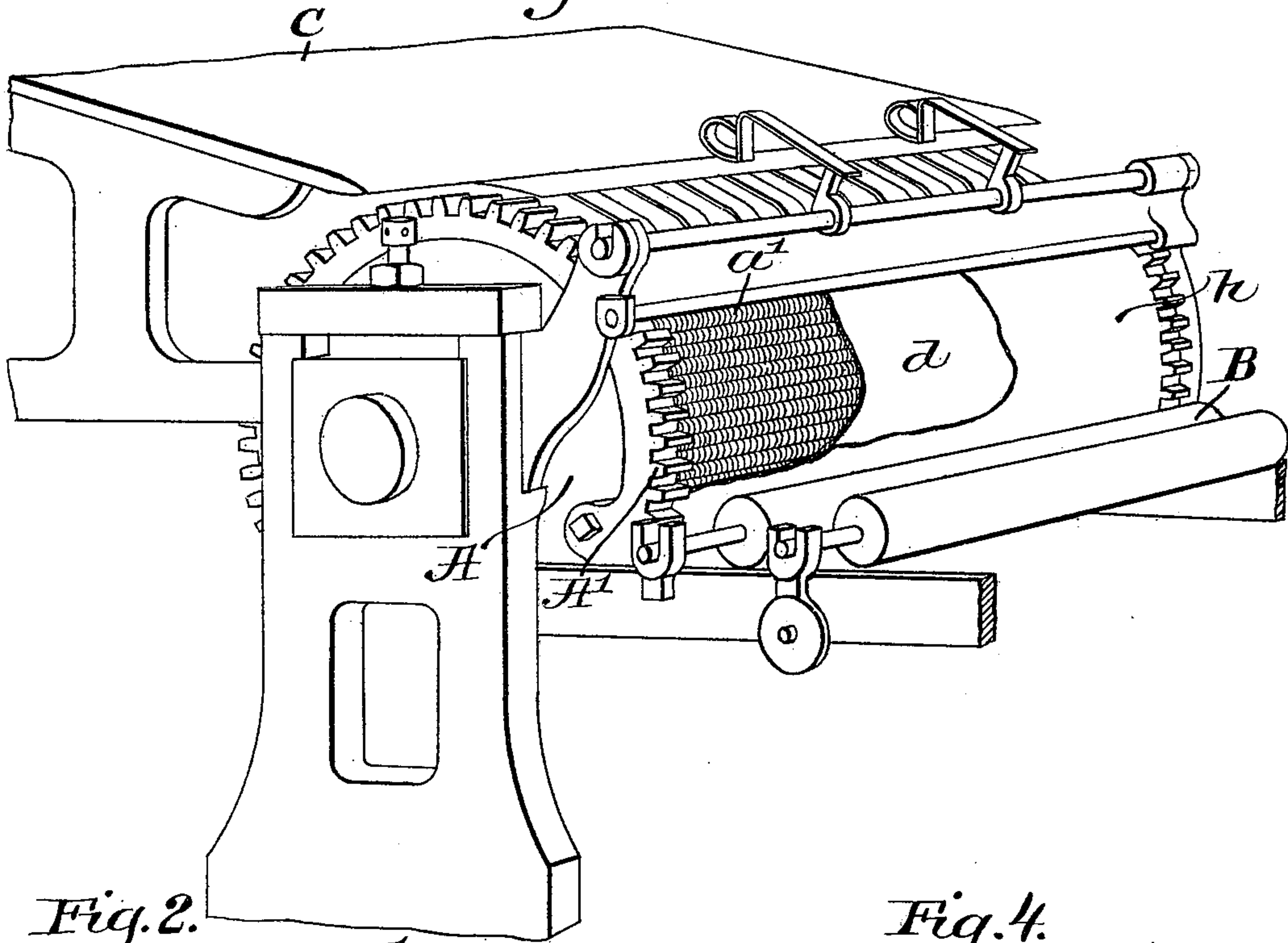


Fig. 2.

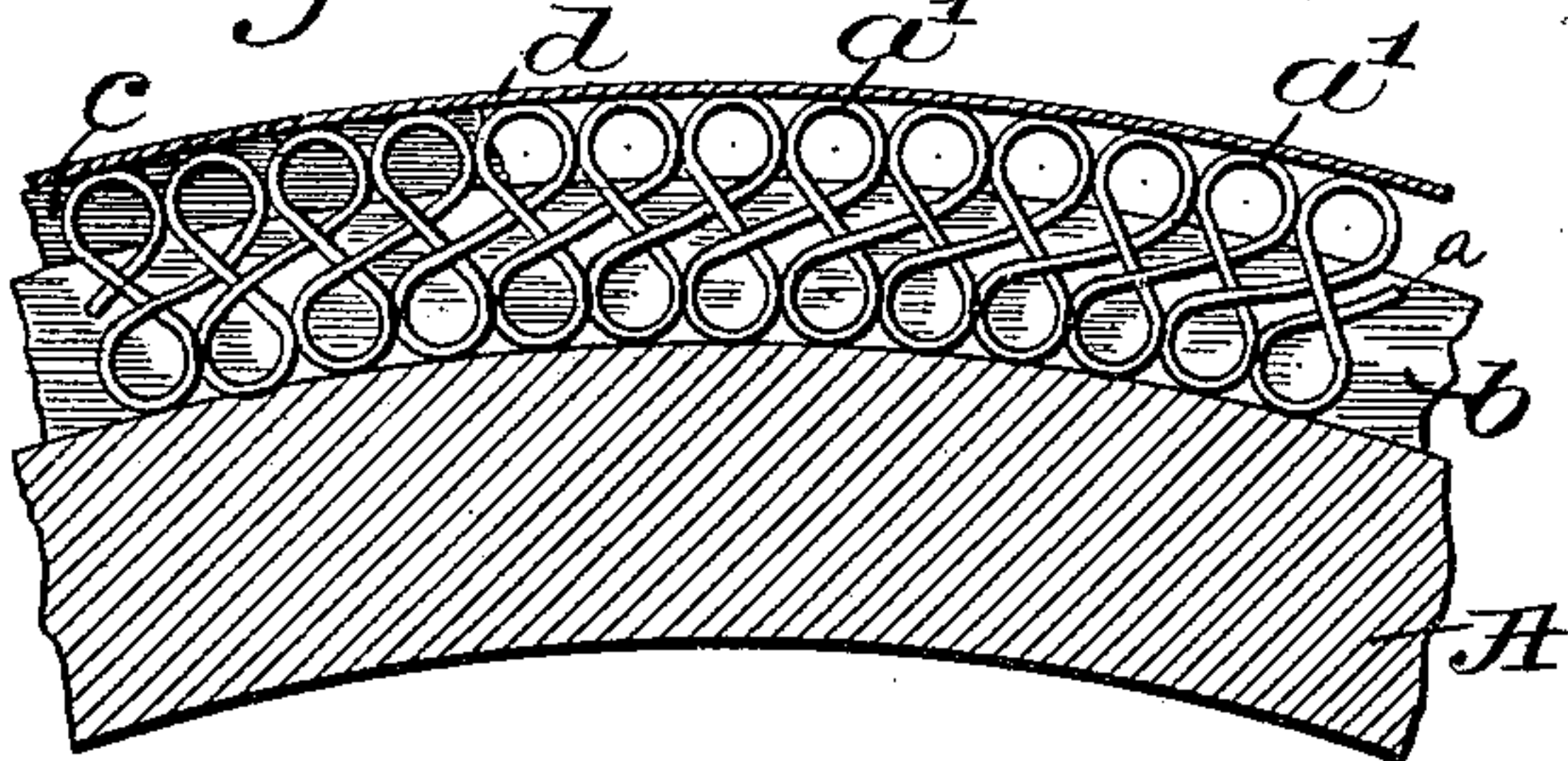


Fig. 4.

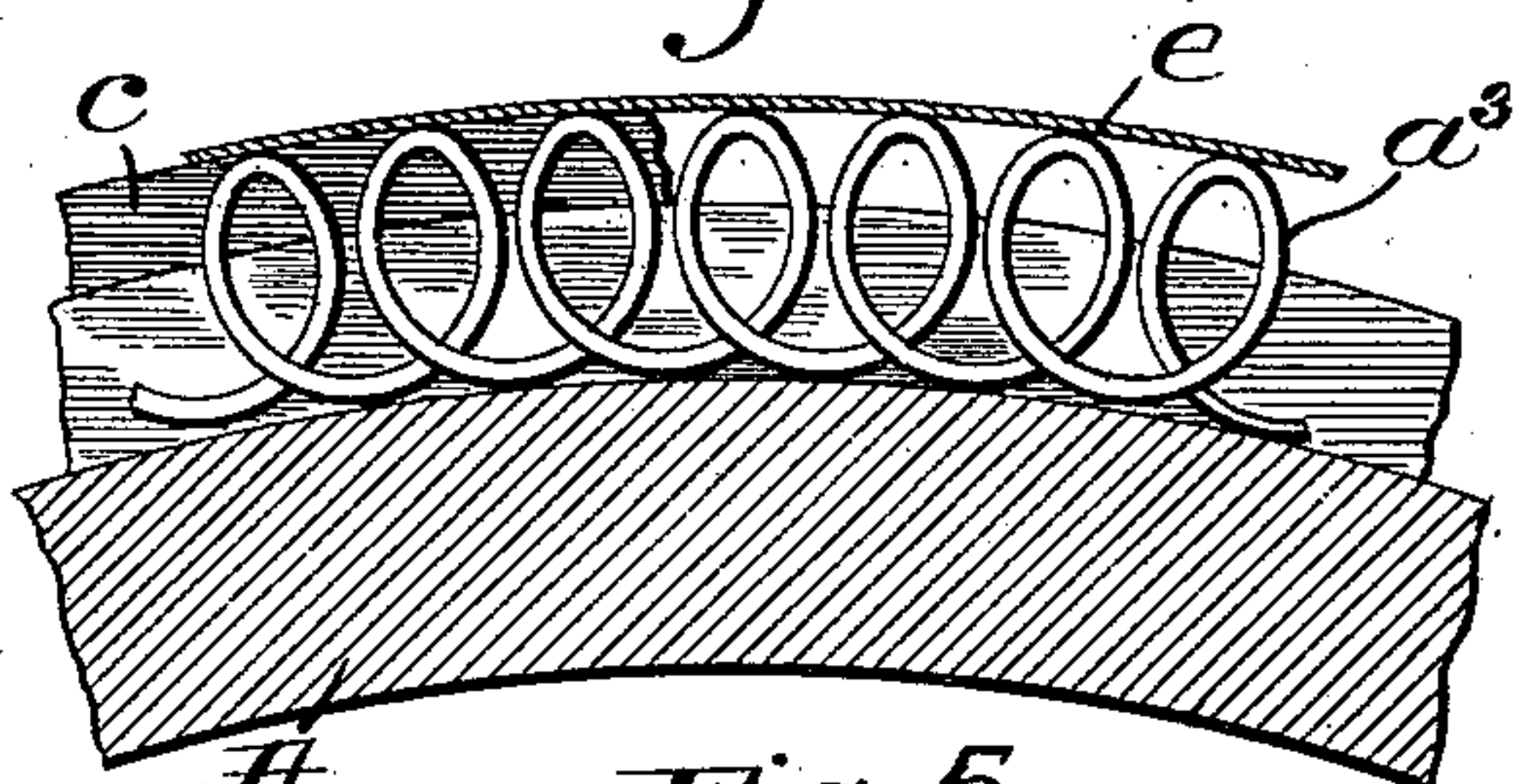


Fig. 3.

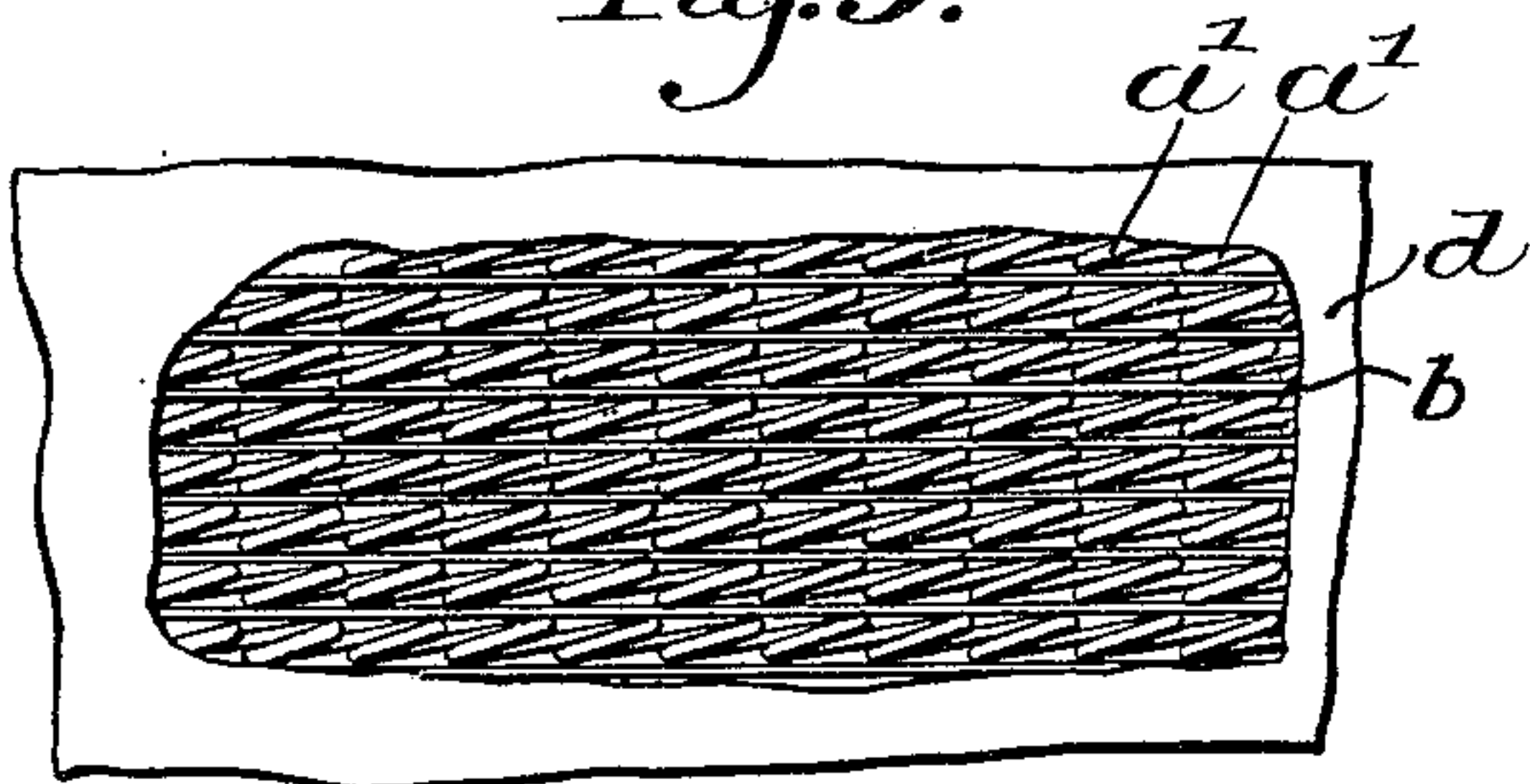
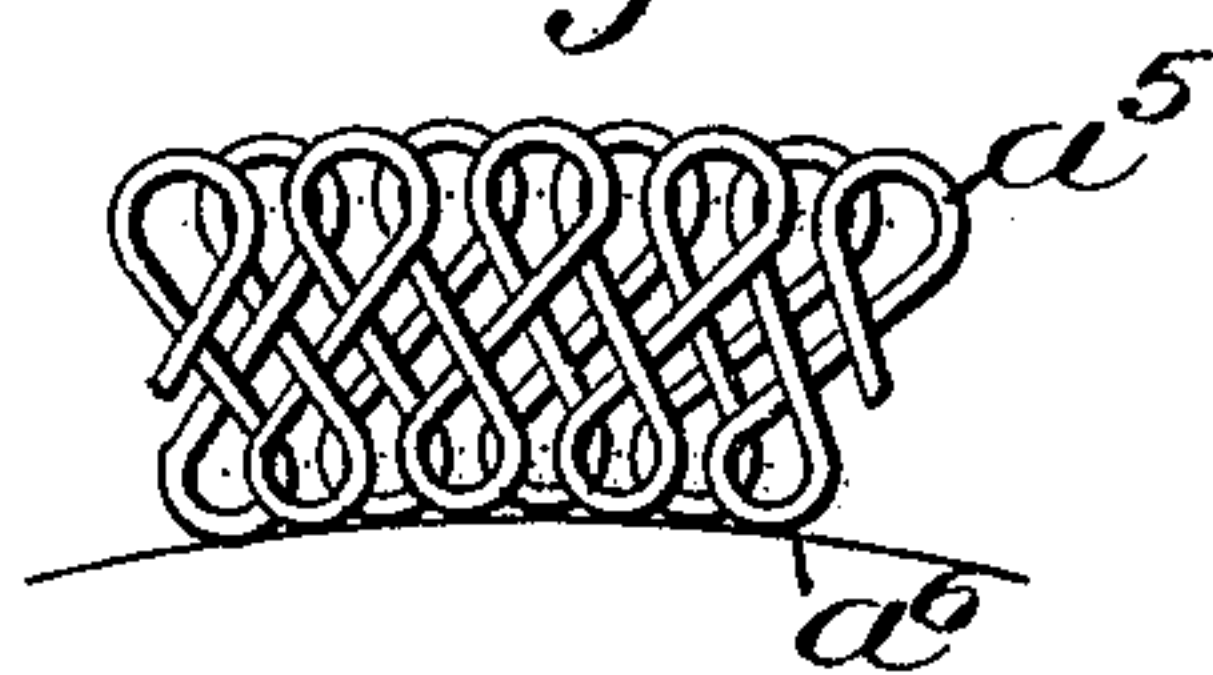


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

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TYMPAN-SURFACE FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 613,219, dated October 25, 1898.

Application filed August 15, 1898. Serial No. 688,599. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR S. ALLEN, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Tympan-Surfaces for Printing-Presses, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention is intended as an improvement upon the invention described in my application, Serial No. 669,041, filed on the 4th day of February, A. D. 1898. In that application the bed or body of the tympan is composed of a series of coiled wires or spring-coils, the coils lying side by side, the face of the coil having applied to it a reinforce or covering to constitute a finished face for the tympan. Herein the wire forming the yielding body or bed of the tympan is made in long pieces coiled, and the coiled wire is made or stretched in such manner that the several turns thereof are so located each with relation to the other that the open centers of adjacent contiguous turns are out of line with relation to each other. I have shown this novel coil system in several different shapes. I have represented the improved coils as separated next the cylinder or bed upon which they rest in use by means of shims or thin plates of leather-board or metal, and the individual turns of the separate coils entering into the formation of the face of the tympan, whether a flat or a circular surface, may be embedded in a bracing composed of a yielding substance or material containing, preferably, india-rubber or other equivalent material, and preferably I cover the entire face with a sheet of paper, cloth, or other material, such as commonly used in connection with tympan-surfaces or cylinders coacting with the printing-surface in a press.

Figure 1, in perspective, shows a portion of a cylinder-press with one of its cylinders provided with my improvement. Fig. 2 is a cross-sectional detail of the cylinder with my improved tympan-surface. Fig. 3 shows a top or plan view of a part of the device shown in Fig. 1 with a portion of the covering omitted. Fig. 4 shows a modification of the spring-coil,

and Fig. 5 shows yet another modification of the spring-coil which may be used.

The cylinder A of the press and its gear A', by which to rotate it, and the working rollers B and the feed-board C are and may be all as usual in cylinder-presses.

This cylinder contains my improved tympan-surface, the same consisting chiefly of wire *a*, bent to form a series of turns *a' a'*, the said wire being spring-wire, leaving the coils as spring-coils or coils the individual turns of which are free to yield to a limited extent and then assume their original shape or position.

Figs. 2 and 3, on an enlarged scale, show the shape of the wire represented in Fig. 1 as applied to the cylinder.

The wire in Figs. 2 and 3 is bent, as shown, to form a double coil, and thereafter the coil is stretched or elongated, leaving the separate turns *a'* with their open centers out of line, or said separate turns follow one another in the length of the wire, as represented best in Fig. 3. This peculiar spring-coil may be applied, if desired, directly to the cylinder A, and the successive coils of wire extended around the cylinder may be separated by shims *b*, which may be composed of leather-board or metal or other suitable material, and thereafter I prefer to apply throughout to the exposed turns *a'* a bracing *c*, composed, preferably, of a yielding substance, such as india-rubber or any of its known equivalents, it being applied by pressure or otherwise to the projecting turns *a'*, so as to sink into the spaces between the successive turns of the coils and extend down into the springs for the desired distance, said bracing preventing tipping and undue expansion of the spring-coils. In Figs. 2 and 3 I have shown this bracing only partially; but it will be understood that it will be preferably used throughout the entire tympan. Outside this bracing I may and preferably will apply a leveling-sheet *d*, which may be composed of a material more dense and harder than the bracing, and thereafter I may apply to said leveling-sheet a top sheet (see Fig. 1) composed, preferably, of paper or cloth such as commonly employed at the face of the tympan.

Fig. 4 shows a spring-coil extended to place its open space out of line with relation to adjacent turns of the spring, as provided for in Fig. 2; but Fig. 4 shows but one series of spring-turns instead of two.

In Fig. 4 I employ the same shims and bracing *c*, they being applied between the series of turns *a*³, and then apply the leveling-sheet *e* and a suitable covering to act at the face of the tympan.

Fig. 5 represents yet another modification, showing a wire laid into spring-coils. This modification differs from Fig. 2 chiefly in that the wire coils are so shaped that one turn contacts at one side with two turns—that is, the coils *a*⁵ *a*⁶ somewhat overlap adjacent turns—but the central openings of the turns do not coincide with the center openings of immediately-adjacent turns in the direction of the length of the wire.

Inasmuch as the use of a tympan-surface such as herein provided for makes it unnecessary to practice the so-called step of “make ready” it becomes possible to apply this tympan directly and permanently to the cylinder A or any other usual bed, and it may be used indefinitely in printing, it effecting a clean, sharp, and well-defined print of the type used on the paper even though inequalities exist in the type or printing-surface.

The spring-coils may be made from a very long wire, and it may be wound about the cylinder circumferentially, and adjacent series of the wire or spring coils may be separated by a shim or shims wound about the cylinder, and thereafter the bracing may be applied by pressure or otherwise, as provided for in my said application, and all may be enclosed in a seamless leveling-tube.

I have found it necessary in practice that the leveling-sheet be harder than the bracing, and it is also very desirable that said leveling-sheet, while substantially hard and stiff, yet may yield somewhat to pressure and follow the bracing and its spring-coils, and this leveling-sheet is also preferably made of a material which besides possessing the properties stated is also substantially moisture-proof.

I have used for the leveling-sheet a compound composed of cotton fiber or rags chemically treated, rolled, and calendered to thereby condense, harden, and finish the same, leaving a smooth surface, and this material may be made in sheet or in tube form.

I prefer to wind the wire having the coil about the cylinder; but my invention would not be departed from if the said wire extended from end to end of the cylinder.

By the term “adjacent connected turns” I mean contiguous turns in the same wire.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a press, a tympan-surface having a body or bed presenting a series of spring-coils, the openings of adjacent or contiguous con-

nected individual turns made from the same wire being out of line one with relation to the other, substantially as described.

2. In a press, a tympan-surface having a body or bed presenting a series of spring-coils, the openings of adjacent or contiguous connected individual turns made from the same wire being out of line one with relation to the other, and shims to separate one series of spring-coils from an adjacent series, substantially as described.

3. In a press, a tympan-surface having a body or bed presenting a series of spring-coils, the openings of adjacent or contiguous connected turns made from the same wire being out of line one with relation to the other, and a bracing applied to and between the turns of the coils next the face of the tympan, substantially as described.

4. In a press, a tympan-surface having a body or bed presenting a series of spring-coils, the openings of adjacent or contiguous connected turns made from the same wire being out of line one with relation to the other, shims to separate one series of spring-coils from an adjacent series, and a bracing applied to the turns of the coils next the face of the tympan, substantially as described.

5. In a press, a tympan-surface having a body or bed presenting a series of spring-coils, the openings of connected adjacent or contiguous turns made from the same wire being out of line one with relation to the other, a bracing applied to and between the turns of the coils next the face of the tympan, and a leveling-sheet harder than said bracing, substantially as described.

6. In a press, a tympan-surface having a body or bed presenting a series of spring-coils, the openings of connected adjacent or contiguous turns made from the same wire being out of line one with relation to the other, a bracing applied to and between the turns of the coils next the face of the tympan, a leveling-sheet harder than the said bracing, and a top sheet applied to said leveling-sheet, substantially as described.

7. In a press, a cylinder having a tympan-surface presenting a body or bed composed of wire bent to present a series of spring-coils, the openings of successive adjacent or contiguous turns of the wire being out of line, said wire being wound about said cylinder, and a bracing applied to the coils next the face of the tympan, substantially as described.

8. In a press, a cylinder having a tympan-surface presenting a body or bed, composed of wire bent to present a series of spring-coils, the openings of successive adjacent or contiguous turns of the wire being out of line, said wire being wound about said cylinder, a shim or shims separating adjacent spring-coils, and a bracing applied to the coils next the face of the tympan, substantially as described.

9. In a press, a tympan-surface having a

body or bed of spring-coils, a bracing applied
to said spring-coils to support and steady the
same, and a leveling-sheet applied to said
bracing, said leveling-sheet being harder and
5 more dense than said bracing, substantially
as described.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

ARTHUR S. ALLEN.

Witnesses:

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EMMA J. BENNETT.