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PATENTED DEC. 4, 1906.

F. W. LANG.
METALLIC PILING.
APPLICATION FILED SEPT. 5, 1906

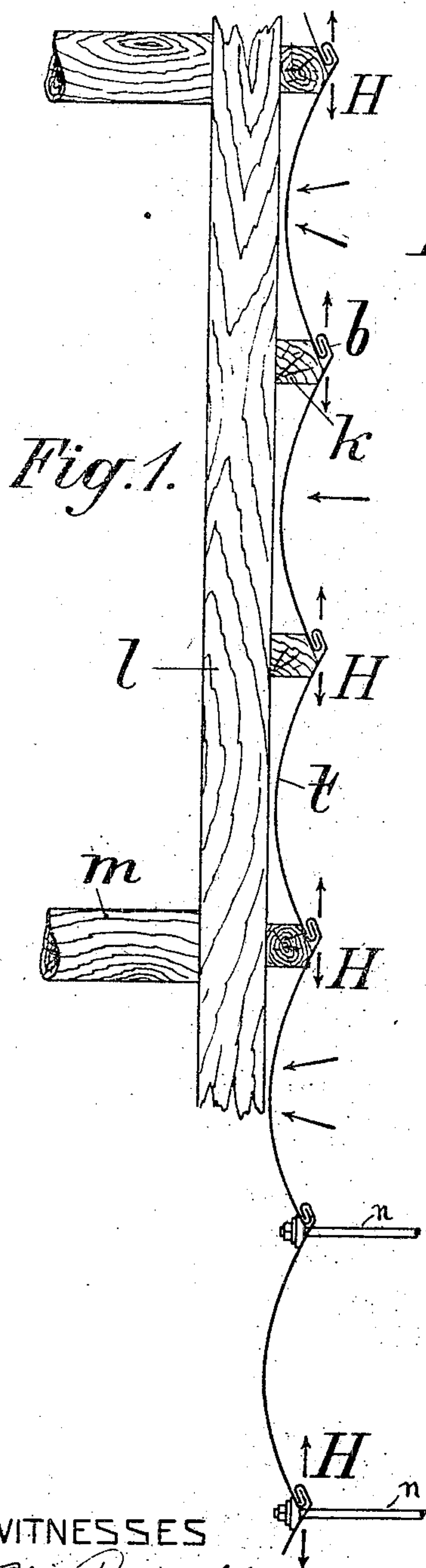


Fig. 2.



Fig. 3.

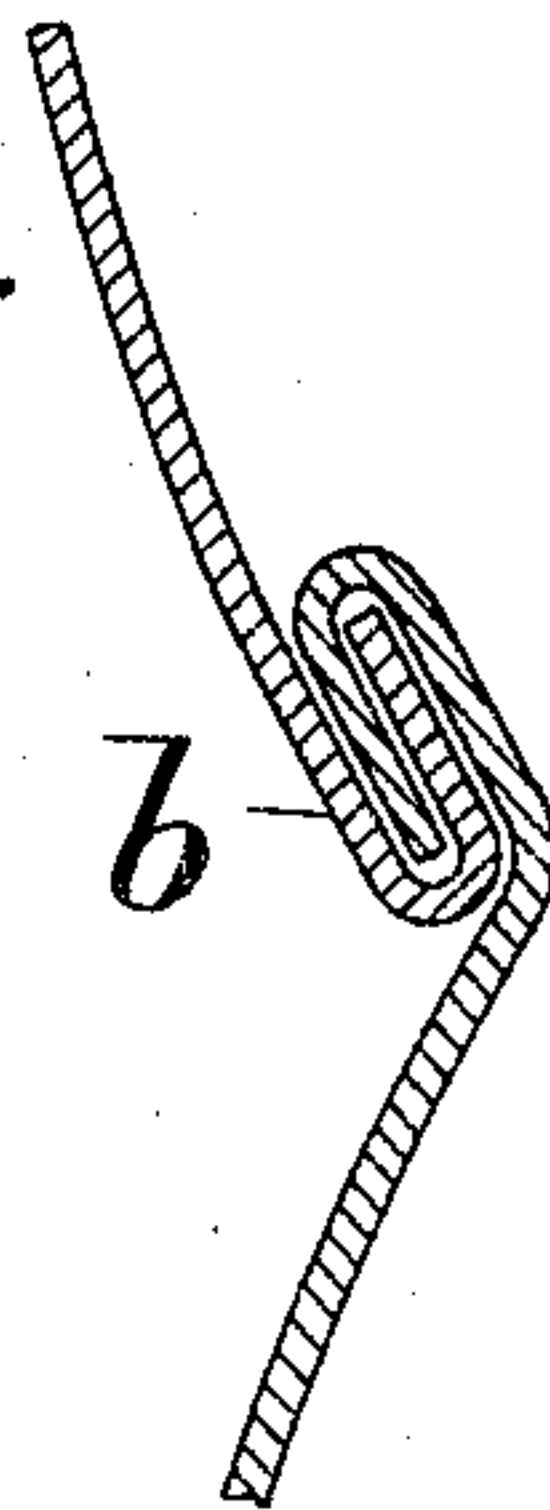


Fig. 4.

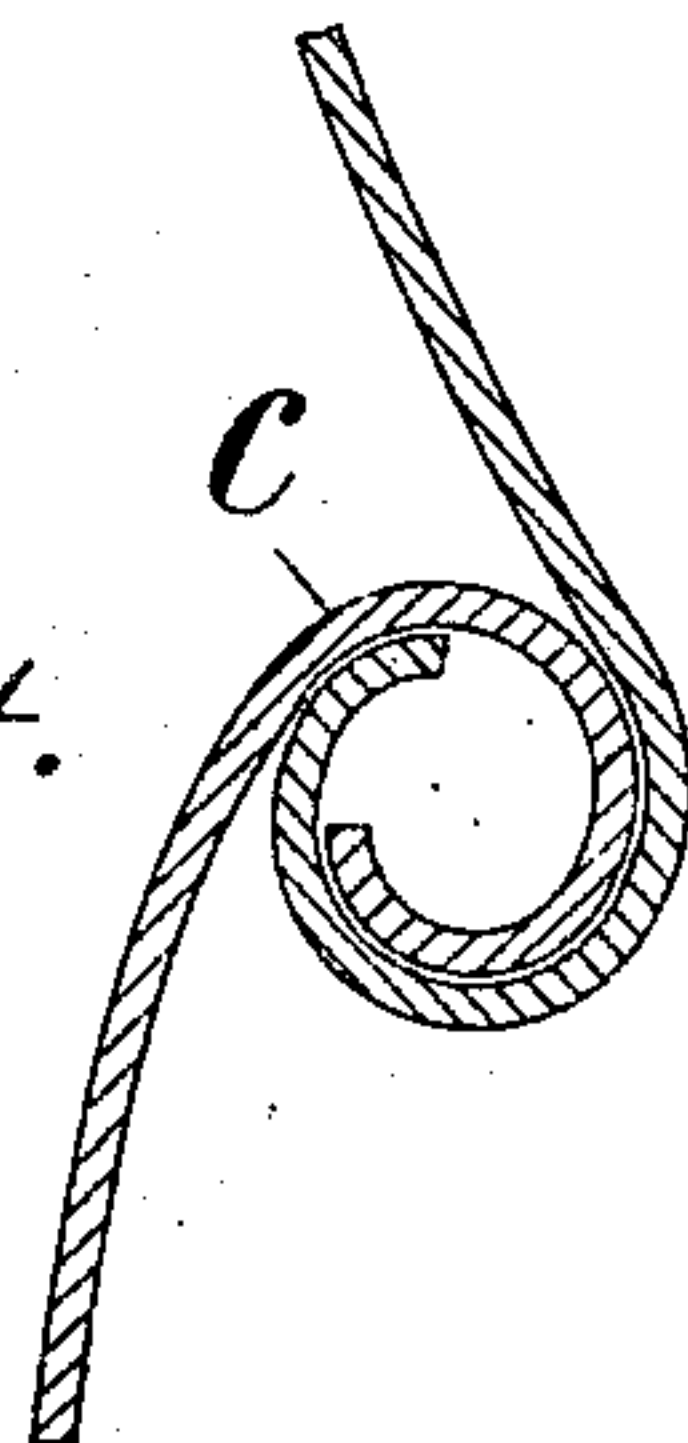
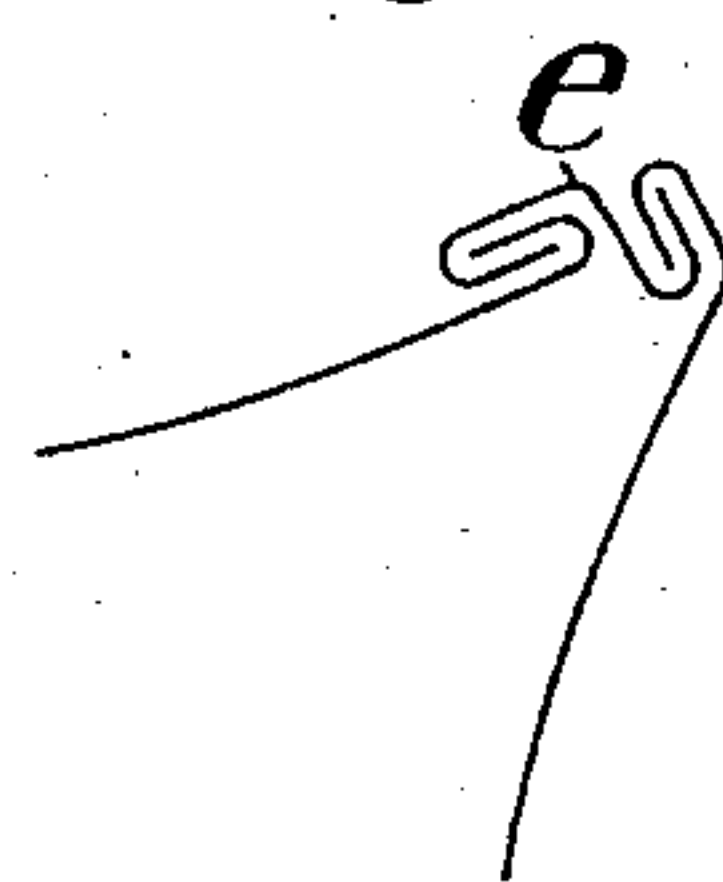


Fig. 5.



Fig. 6.



WITNESSES
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UNITED STATES PATENT OFFICE.

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METALLIC PILING.

No. 837,692.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRIEDRICH WILHELM LANG, engineer, a subject of the German Emperor, residing at 15 Meridianstrasse, Hamburg, Germany, have invented certain new and useful Improvements in or Relating to Metallic Piling; and I do hereby 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.

This invention relates to walls formed of steel or other metallic sheet-piling acting as a supporting-plate, with rigid guides or connections.

In the accompanying drawings, Figure 1 shows a horizontal section through a wall constructed according to my said invention. Figs. 2 to 6 are cross-sections, on a larger scale, through several forms of connection between the individual plates of a wall.

The metal plates *t*, which according to the purpose for which they are intended are curved to a greater or less extent and are bent at their longitudinal edges into the shape of a hook, are so driven into the ground that their overturned edges or guides *a b c d e*, Figs. 2 to 6, engage one another and cannot shift longitudinally. The possibility of these joints opening out or becoming leaky—as occurs, for instance, in the wood, corrugated-iron, or other walls as ordinarily constructed—is here completely precluded. By the engagement of the hook-like edges with one another what may be termed a “labyrinth joint” is formed, which affords in the case of walls and the like a reliable and tight joint, even against the finest and most drifting sand.

Horizontal stresses *H* due to the strain on the face of the supporting-plates are completely taken up by the mutual engagement of the longitudinal edges or guides, and thus the desired favorable action of the curved members as supporting-plates is insured.

The wall may be strengthened in various ways. In building pits for piping this is preferably effected, as shown in Fig. 1 of the drawings, by arranging a strengthened longitudinal beam *l* in front of the guides and driving in small wooden wedges *k* between the beam and the overturned edges of the plates *t*, or in place of wedges uprights may be employed which transmit the vertical bearing pressure from the plates to the beam and struts.

In case of single walls standing free the wall can be, for instance, supported by additional pile-props *m*, rammed in at the back of or by tie-rods *n*, arranged in front of the plates, as shown in the lower part of Fig. 1.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A wall comprising a series of interlocking sheet-piling members each arranged to present a concave face to the load thrust.

2. A wall comprising a series of interlocking sheet-piling members each arranged to present a concave face to the load thrust, the succession of concave faces being non-concentric.

3. A wall comprising a series of interlocked curved sheet-piling members, each arranged to present a concave face to the load thrust, the curvature of each member being non-concentric to the area bounded by the wall.

4. A wall comprising a series of sheet-piling members having concave webs and reversely-curved interlocked edge portions, arranged to present concave web-faces to the load thrust.

5. A wall comprising a series of sheet-piling members having their meeting edges interlocked, in combination with a backing arranged to support the members at the place of interlocking.

6. A wall comprising a series of interlocked sheet-piling members arranged to present a succession of non-concentric concave faces to the load thrust, in combination with a backing arranged to support the members at the place of interlocking.

7. A wall comprising a series of metallic sheet-piling members having their meeting edges interlocked to permit of relative lateral displacement in driving, in combination with a backing of timber arranged to support the sheet-piling members at the place of interlocking.

8. A wall comprising a series of curved sheet-piling members having their meeting edges interlocked, in combination with a skeleton backing arranged to support the sheet-piling members at the place of interlocking and leaving them unsupported at intermediate points.

9. A wall comprising a series of sheet-piling members having concave webs and reversely-curved interlocked edge portions, ar-

5 ranged to present the concave web-faces to the load thrust, in combination with a skeleton backing arranged to support the sheet-piling members at the place of interlocking and leaving the web unsupported.

10 10. A wall comprising a series of curved metallic sheet-piling members having their meeting edges interlocked to permit of relative lateral displacement in driving, in combination with a skeleton backing of timber

arranged to support the sheet-piling members at the place of interlocking and leaving them unsupported at intermediate points.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

FRIEDRICH WILHELM LANG.

Witnesses:

OTTO W. HELLMRICH,

IDA CHRIST. HAUFERMANN.