J. SCHWARTZMAN.

BED SPRING.

APPLICATION FILED FEB. 10, 1914.

1,115,587. Patented Nov. 3, 1914.

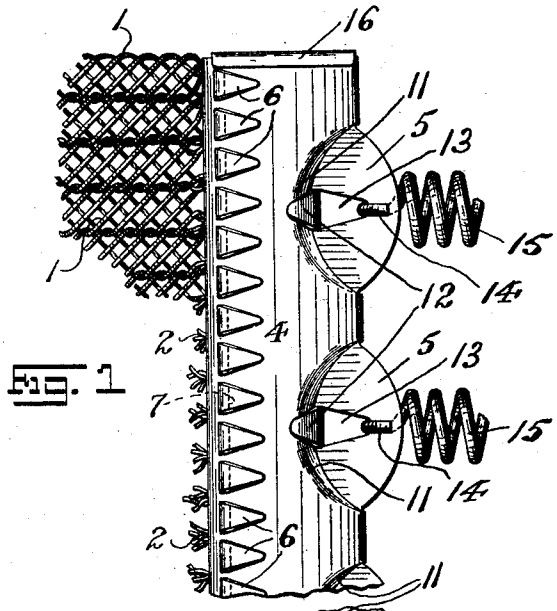


Fig. 1

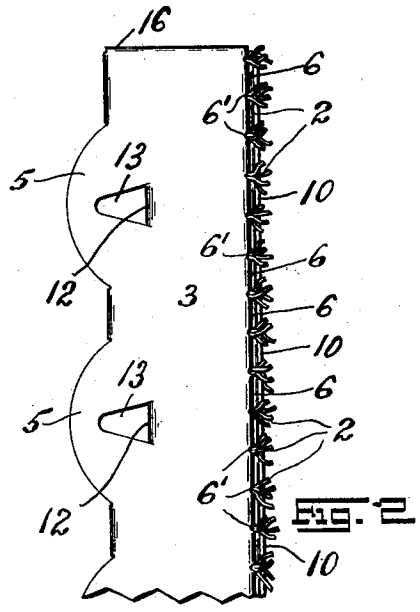


Fig. 2

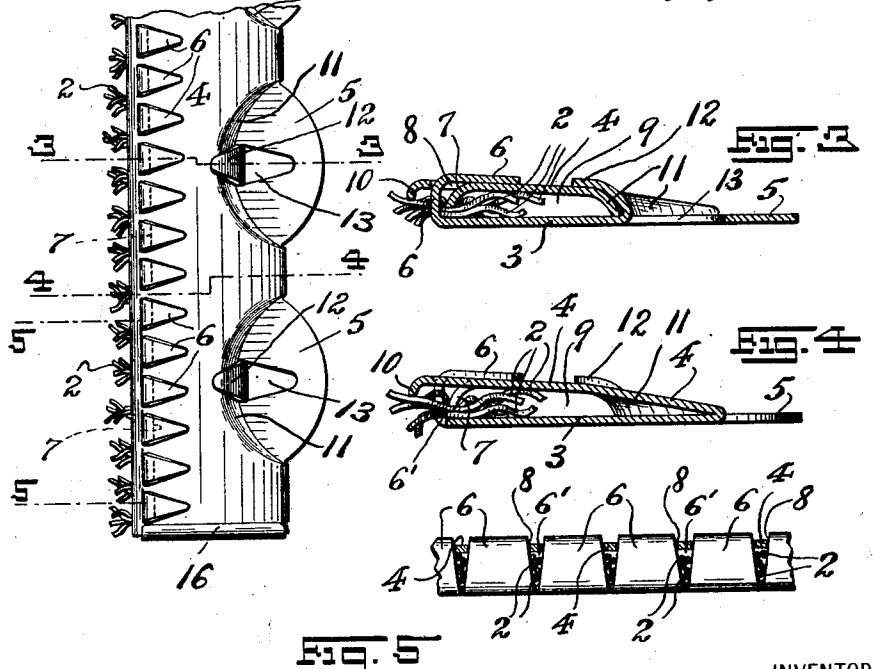


Fig. 5

Fig. 3

Fig. 4

WITNESSES:

Fredk. W. Frantzel

Eva E. Desch.

INVENTOR

Jacob Schwartzman,

BY

Frantzel & Richards,

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JACUB SCHWARTZMAN, OF BROOKLYN, NEW YORK.

BED-SPRING.

1,115,587. Specification of Letters Patent. Patented Nov. 3, 1914.

Application filed February 10, 1914. Serial No. 817,773.

To all whom it may concern:

Be it known that I, JACUB SCHWARTZMAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Bed-Springs; 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, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The present invention relates, generally, to improvements in bed-springs; and, the invention has reference, more particularly, to improvements in bed-springs made from a woven wire metallic fabric, provided at its respective end portions with a fabric binding and gripping element, to which the sharp rough ends of the fabric are secured, and in which the same are concealed, and by means of which the fabric is stretched and supported in the usual framework for suspending the springs in proper relation to a bed, couch or similar article of furniture.

My present invention has for its principal object to provide a novel binding and gripping element for binding and securing the rough edges of a metallic spring fabric, and for providing a means for suspending said fabric in stretched relation to the spring frame-work. Said binding and gripping element being made of an integral flat sheet metal body, the parts of which are struck-up out of the same and so formed and bent as to coöperate to provide the finished binding and gripping element, thus providing a cheap and efficient one-piece construction, and saving all waste of metal in its construction.

A further object of the said invention lies in the novel arrangement and formation of the several parts of the binding and gripping element, so that when the binding and gripping element is connected with the metallic spring fabric it will receive and envelop the sharp rough ends of the same, and firmly grip said ends, being retained in such relation to said fabric by the novel cooperation and interlocking of the various parts of the binding and gripping element. As thus enveloping and gripping said rough sharp ends of the spring fabric, said binding and gripping element is adapted to conceal the same and protect both the bedclothes and the person from injurious contact with said sharp rough ends of the spring-fabric.

A still further object of the present invention is to provide a binding and gripping element which receives the ends of the spring fabric in such a manner as to eliminate interstices or crevices in its construction in which vermin may find places of concealment, thus providing for a greater degree of sanitary conditions and general cleanliness.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the present invention.

The invention consists, primarily, in the novel binding and gripping element for woven wire metallic spring fabrics hereinafter set forth; and, the invention consists, furthermore, in the several novel arrangements and combinations of the various devices and parts, as well as in the details of the construction of the same, all of which will be hereinafter more fully described, and then finally embodied in the claims which are appended to and which form an essential part of this specification.

The present invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of one end-portion of a woven wire metallic spring fabric connected with the novel binding and gripping element embodying the principles of my present invention; Fig. 2 is a detail plan view of a portion of the under or opposite side of said novel binding and gripping element. Fig. 3 is a detail cross section taken on line 3—3 in said Fig. 1; Fig. 4 is another detail cross section taken on line 4—4 in said Fig. 1; and Fig. 5 is a detail longitudinal section taken on line 5—5 in said Fig. 1; all of said above mentioned views being drawn on an enlarged scale.

Similar characters of reference are employed in all of the above described views to indicate corresponding parts.

Referring now to the several figures of the drawings, the reference character 1 indicates any suitable form of woven wire metallic spring fabric, such as is commonly

used in the construction of bed-springs, and 2 indicates the free sharp and rough end-portions of the wire strands from which said fabric is made.

The novel binding and gripping element comprises a main body or plate 3. Said main body or plate 3 is provided with a plurality of longitudinally disposed curvilinear cuts so disposed that said main body or plate 3 may be doubled back upon itself to provide a forwardly extending top-plate 4, leaving, however, a plurality of rearwardly extending tongues 5, the same lying, preferably, in the plane of said main body or plate 3. The forward edge of said main body or plate 3 is provided with a plurality of upwardly turned teeth 6. Struck out of said top-plate 4, adjacent to the free marginal edge of the same, are a plurality of downwardly and forwardly extending gripping tongues 7, the same being of greater width at their extremities than at their bases. In bending down said gripping tongues 7 a plurality of receiving openings 8 are likewise formed in said top-plate 4, adjacent to the free marginal edge thereof. These receiving openings 8 register with the extremities of said upwardly turned teeth 6 of said main body or plate 3.

The free sharp and rough end portions 2 of the wire strands, from which the spring fabric 1 is made, are laid across the teeth 6 so as to be lodged in the spaces 6′ therebetween. When said forwardly extending top-plate 4 is then doubled back upon said main body or plate 3, it is spaced slightly away from the latter to provide an intervening receiving space or chamber 9 in which said sharp and rough end-portions 2 of the spring fabric 1 are concealed, and as the top-plate 4 is bent down to its normal position the free ends of said teeth 6 pass through said receiving openings 8, so that the same project above the upper surface of said top-plate 4, whereupon the said free ends of the teeth 6 are bent rearwardly and downwardly upon the upper surface of said top-plate 4 thereby interlocking and securing said free ends of the respective main body or plate 3 and said top-plate 4 in their normal associated relation. When the forward end of said top-plate 4 is thus secured, the free downwardly turned extremities of the gripping tongues 7 press downwardly upon the strands of wire forming the end-portions 2 of the spring-fabric 1, as the same diverge within the receiving space or chamber 9 after passing through the spaces 6′ between the teeth 6, and thus said end-portions 2 are gripped and held securely between the ends of said gripping tongues 7 and said main body or plate 3 against withdrawal from said receiving space or chamber 9 through said spaces 6′ between the teeth 6. To provide a further grip upon said end-portions 2 of the spring fabric 1, the extreme free edge of said top-plate 4 is bent downwardly against the strands of said end-portions 2, thus providing a gripping-lip 10 in engagement therewith. Thus said sharp and rough end-portions 2 of the spring fabric 1 are concealed within the interior of the binding and gripping element, and at the same time firmly gripped thereby so that the spring fabric is properly spread and ready for attachment to the springs suspending framework. The marginal edges of said top-plate 4 bordering said curvi-linear cuts are depressed to form downwardly extending closing-portions 11 which register upon said main body or plate 3, thus closing the interstices between said top-plate 4 and said main body or plate 3 formed by said curvilinear cuts, and thereby closing said intervening space or chamber 9 against the entrance of dirt or vermin at such points, at the same time maintaining said top-plate 4 spaced away from said main body or plate 3 so as not to constrict said space or chamber 9. In order to further prevent the separation of said top-plate 4 from said main body or plate 3, and to further secure the said parts in their normal associated relation to each other, there are provided a plurality of clamp-lugs 12 which are struck up in part out of said main body or plate 3 and in part out of said tongues 5 extending rearwardly therefrom. These clamp-lugs 12 are turned upwardly and over said closing-portions 11 and upon the upper surface of said top-plate 4, thereby preventing any separation of the latter from said main body or plate 3 at their rear edges. In striking out said clamp-lugs 12, openings 13 are left which extend partly into said tongues 5. These openings serve to receive the hook-end 14 of helical springs 15 which are ordinarily used to suspend the spring fabric 1 upon the usual supporting frame-work. Extending outwardly from the ends of said main body or plate 3 are end-members 16 which are turned upwardly and over the upper surface of said top-plate 4, thus closing the open ends of the said intervening space or chamber 9, provided between the main body or plate 3 and said top-plate 4, against the entrance of dirt or vermin therein at such points.

From the above description it will be apparent that the present invention provides a very strong and efficient one-piece binding and gripping element for woven wire spring fabrics, which not only grips and binds the rough and sharp end-portions of the fabric, but which also is so constructed as to be vermin and dirt proof; and, furthermore, the novel construction of the device provides integral interlocking parts which firmly secure the device in proper form and in proper

relation to the spring fabric without necessity of using rivets or any other form of separate fastening devices.

I claim:—

1. A spring fabric in combination with an end binding and gripping element comprising a main body doubled upon itself to provide an intervening chamber in which the ends of said spring fabric are received, means connected with the superimposed forward longitudinal edges of said main-body for interlocking the same together, and internal gripping means extending downwardly from the upper portion of said doubled body for engaging the strands of the spring fabric lodged in said chamber.

2. A spring fabric in combination with an end binding and gripping element comprising a main body doubled upon itself to provide an intervening chamber in which the ends of said spring fabric are received, means connected with the superimposed forward longitudinal edges of said main-body for interlocking the same together, internal gripping means extending downwardly from the upper portion of said doubled body for engaging the strands of the spring fabric lodged in said chamber, and a downwardly turned gripping lip formed at the free edge of said upper portion of said doubled body.

3. A spring fabric in combination with an end binding and gripping element comprising a main body doubled back upon itself to form a top-plate superimposed above said main body to provide an intervening chamber, a plurality of teeth turned upwardly from the forward marginal edge of said main body and providing intervening spaces through which the strands of said spring fabric pass so that their free ends lie in said chamber, said top-plate having a plurality of openings adjacent to its free edge through which said teeth are inserted, said teeth being then turned over upon the upper surface of said top-plate to thereby interlock the forward longitudinal edges of said main body and said top-plate together, and gripping tongues forced downwardly from said top-plate into said chamber for engaging the end-portion of said strands of the spring fabric, said gripping tongues being registered beneath the turned over ends of said teeth.

4. A spring fabric in combination with an end binding and gripping element comprising a main body doubled back upon itself to form a top-plate superimposed above said main body to provide an intervening chamber, a plurality of teeth turned upwardly from the forward marginal edge of said main body and providing intervening spaces through which the strands of said spring fabric pass so that their free ends lie in said chamber, said top-plate having a plurality of openings adjacent to its free edge through which said teeth are inserted, said teeth being then turned over upon the upper surface of said top-plate to thereby interlock the forward longitudinal edges of said main body and said top-plate together, gripping tongues forced downwardly from said top-plate into said chamber for engaging the end-portions of said strands of the spring fabric, said gripping tongues being registered beneath the turned over ends of said teeth, and a downwardly turned gripping lip formed at the free edge of said top-plate.

5. In a device of the kind described, a main body doubled back upon itself to provide a top-plate, and a chamber between the latter and said main body for the reception of the free ends of a spring fabric, said main body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bent, the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing portions, clamping-lugs struck up out of said main body so as to leave openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs being bent forwardly across said closing-portions and said top-plate to hold the same in position, means for interlocking the forward edges of said main body and said top-plate, and means for gripping the said inclosed ends of the spring fabric.

6. In a device of the kind described, a main body doubled back upon itself to provide a top-plate, and a chamber between the latter and said main-body for the reception of the free ends of a spring fabric, said main body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bend, the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing-portions, clamping-lugs struck up out of said main-body so as to serve openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs being bent forwardly across said closing-portions and said top-plate to hold the same in position, means for interlocking the forward edges of said main body and said top-plate, and gripping tongues forced downwardly out of said top-plate for engaging the inclosed ends of said spring fabric.

7. In a device of the kind described, a main body doubled back upon itself to provide a top-plate, and a chamber between the latter and said main body for the reception of the free ends of a spring fabric, said main

body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bend, the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing portions, clamping-lugs struck up out of said main body so as to leave openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs being bent forwardly across said closing-portions and said top-plate to hold the same in position, means for interlocking the forward edges of said main body and said top-plate, gripping tongues forced downwardly out of said top-plate for engaging the inclosed ends of said spring fabric, and a downwardly turned gripping lip formed at the free edge of said top-plate.

8. In a device of the kind described, a main body doubled back upon itself to provide a top-plate, and a chamber between the latter and said main body for the reception of the free ends of a spring fabric, said main body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bend, the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing-portions, clamping-lugs struck up out of said main body so as to leave openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs being bent forwardly across said closing-portions and said top-plate to hold the same in position, means for interlocking the forward edges of said main body and said top-plate, gripping tongues forced downwardly out of said top-plate for engaging the inclosed ends of said spring fabric, a downwardly turned gripping lip formed at the free edge of said top-plate, and closing members connected with the ends of said main-body adapted to be turned upwardly and over upon said top-plate to close the ends of said chamber.

9. A spring fabric in combination with an end binding and gripping element comprising a main body doubled back upon itself to form a top-plate superimposed above said main body to provide an intervening chamber, a plurality of teeth turned upwardly from the forward marginal edge of said main body and providing intervening spaces through which the strands of said spring fabric pass so that their free ends lie in said chamber, said top-plate having a plurality of openings adjacent to its free edge through which said teeth are inserted, said teeth being then turned over upon the upper surface of said top-plate to thereby interlock the forward longitudinal edges of said main body and said top-plate together, gripping tongues forced downwardly from said top-plate into said chamber for engaging the end-portions of said strands of the spring fabric, said gripping tongues being registered beneath the turned over ends of said teeth, a downwardly turned gripping lip formed at the free edge of said top-plate, and closing members connected with the ends of said main body adapted to be turned upwardly and over upon said top-plate to close the ends of said chamber.

10. In a device of the kind described, a main body doubled back upon itself to provide a top-plate, and a chamber between the latter and said main body for the reception of the free ends of a spring fabric, said main body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bend, the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing portions, clamping-lugs struck up out of said main-body so as to leave openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs being bent forwardly across said closing-portions and said top-plate to hold the same in position, means for interlocking the forward edges of said main body and said top-plate, means for gripping the said inclosed ends of the spring fabric, and closing members connected with the ends of said main body adapted to be turned upwardly and over upon said top-plate to close the ends of said chamber.

11. In a device of the kind described, a main body doubled back upon itself to provide a top-plate and a chamber between the latter and said main body for the reception of the free end of a spring fabric, said main body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bend, the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing-portions, clamping-lugs struck up out of said main body so as to leave openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs being bent forwardly across said closing-portions and said top-plate to hold the same in position, a plurality of teeth turned upwardly from the forward marginal edge of said main body and providing intervening spaces through which the strands of said spring fabric pass so that their ends lie in said

chamber, said top-plate having a plurality of openings adjacent to its free edge through which said teeth are inserted, said teeth being turned over upon the upper surface of said top-plate to thereby interlock the forward edges of said main body and said top-plate together, and gripping means connected with said top-plate for engaging said strands of the spring fabric.

12. In a device of the kind described, a main body doubled back upon itself to provide a top-plate and a chamber between the latter and said main body for the reception of the free ends of a spring fabric, said main body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bend, the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing-portions, clamping-lugs struck up out of said main body so as to leave openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs being bent forwardly across said closing-portions and said top-plate to hold the same in position, a plurality of teeth turned upwardly from the forward marginal edge of said main body and providing intervening spaces through which the strands of said spring fabric pass so that their ends lie in said chamber, said top-plate having a plurality of openings adjacent to its free edge through which said teeth are inserted, said teeth being turned over upon the upper surface of said top-plate to thereby interlock the forward edges of said main body and said top-plate together, and gripping tongues forced downwardly from said top-plate into said chamber for engaging the end-portions of said strands of the spring fabric, said gripping tongues being registered beneath the turned over ends of said teeth.

13. In a device of the kind described, a main body doubled back upon itself to provide a top-plate and a chamber between the latter and said main body for the reception of the free ends of a spring fabric, said main body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bend, the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing-portions, clamping-lugs struck up out of said main body so as to leave openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs being bent forwardly across said closing-portions and said top-plate to hold the same in position, a plurality of teeth turned upwardly from the forward marginal edge of said main body and providing intervening spaces through which the strands of said spring fabric pass so that their ends lie in said chamber, said top-plate having a plurality of openings adjacent to its free edge through which said teeth are inserted, said teeth being turned over upon the upper surface of said top-plate to thereby interlock the forward edges of said main body and said top-plate together, and a downwardly turned gripping lip formed at the free edge of said top-plate.

14. In a device of the kind described, a main body doubled back upon itself to provide a top-plate and a chamber between the latter and said main body for the reception of the free ends of a spring fabric, said main body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bend; the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing-portions, clamping-lugs struck up out of said main body so as to leave openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs being bent forwardly across said closing-portions and said top-plate to hold the same in position, a plurality of teeth turned upwardly from the forward marginal edge of said main body and providing intervening spaces through which the strands of said spring fabric pass so that their ends lie in said chamber, said top-plate having a plurality of openings adjacent to its free edge through which said teeth are inserted, said teeth being turned over upon the upper surface of said top-plate to thereby interlock the forward edges of said main body and said top-plate together, and closing members connected with the ends of said main body adapted to be turned upwardly and over upon said top-plate to close the ends of said chamber.

15. In a device of the kind described, a main body doubled back upon itself to provide a top-plate and a chamber between the latter and said main body for the reception of the free ends of a spring fabric, said main body being provided with curvi-linear cuts intersecting the line of bend so that when said top-plate is bent back over said main body rearwardly extending tongues are formed at the line of bend, the marginal edges of said top-plate bordering said curvi-linear cuts being turned downwardly to provide closing-portions, clamping-lugs struck up out of said main body so as to leave openings in said rearwardly extending tongues adapted to receive the ends of helical suspending springs, said clamping-lugs

being bent forwardly across said closing-portions and said top-plates to hold the same in position, a plurality of teeth turned upwardly from the forward marginal edge of said main body and providing intervening spaces through which the strands of said spring fabric pass so that their ends lie in said chamber, said top-plate having a plurality of openings adjacent to its free edge through which said teeth are inserted, said teeth being turned over upon the upper surface of said top-plate to thereby interlock the forward edges of said main body and said top-plate together, and gripping means connected with said top-plate for engaging said strands of the spring fabric, and closing members connected with the ends of said main-body adapted to be turned upwardly and over upon said top-plate to close the ends of said chamber.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 4th day of February, 1914.

JACUB SCHWARTZMAN.

Witnesses:
GEORGE D. RICHARDS,
ADOLPH HANSEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."