

W. P. HAMMOND.
COUCH BED.
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980,631.

Patented Jan. 3, 1911.

2 SHEETS—SHEET 1.

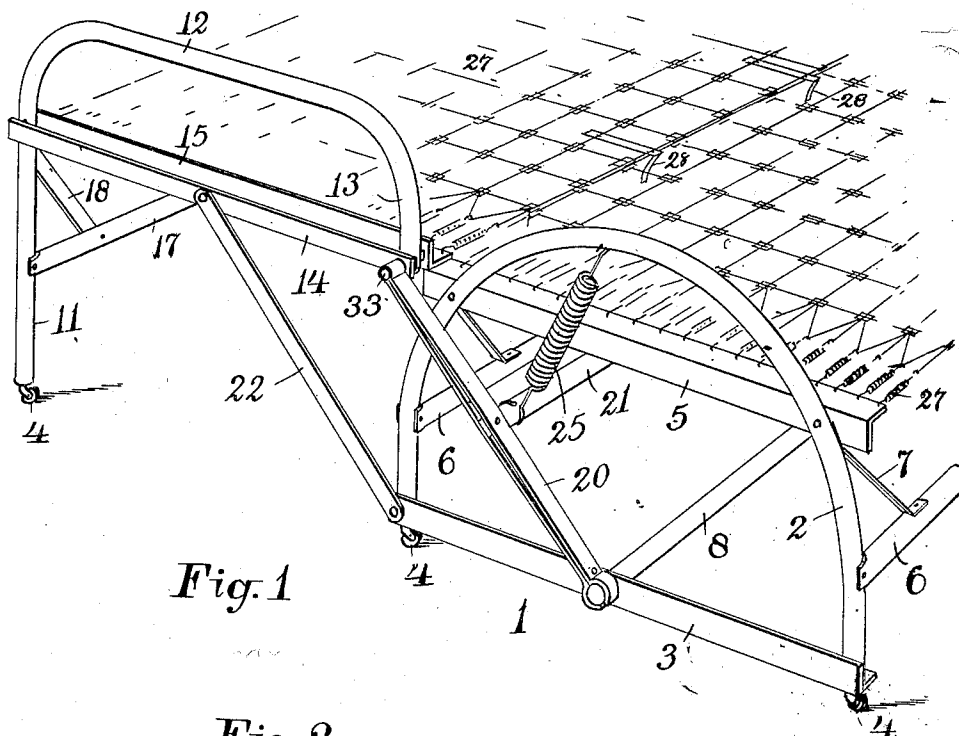
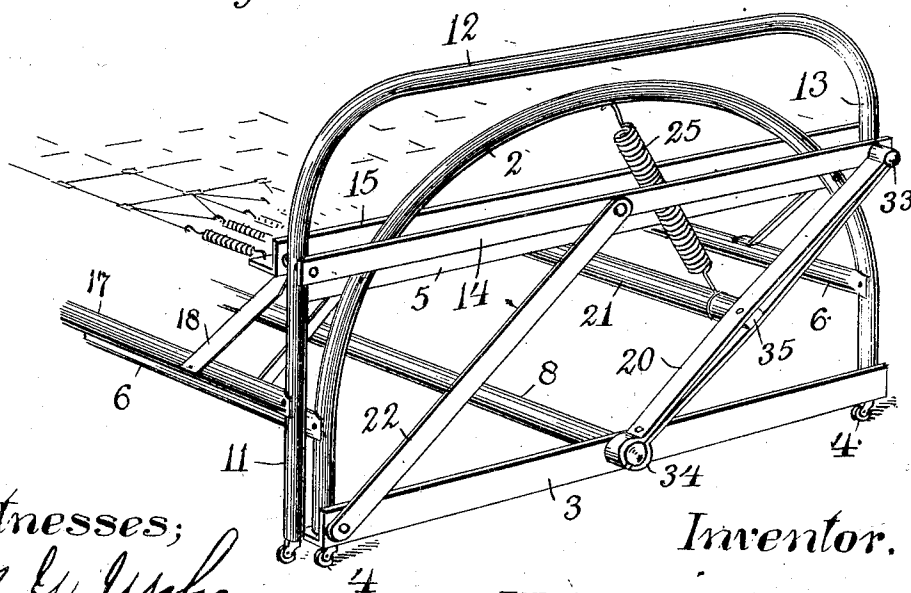


Fig. 1

Fig. 2



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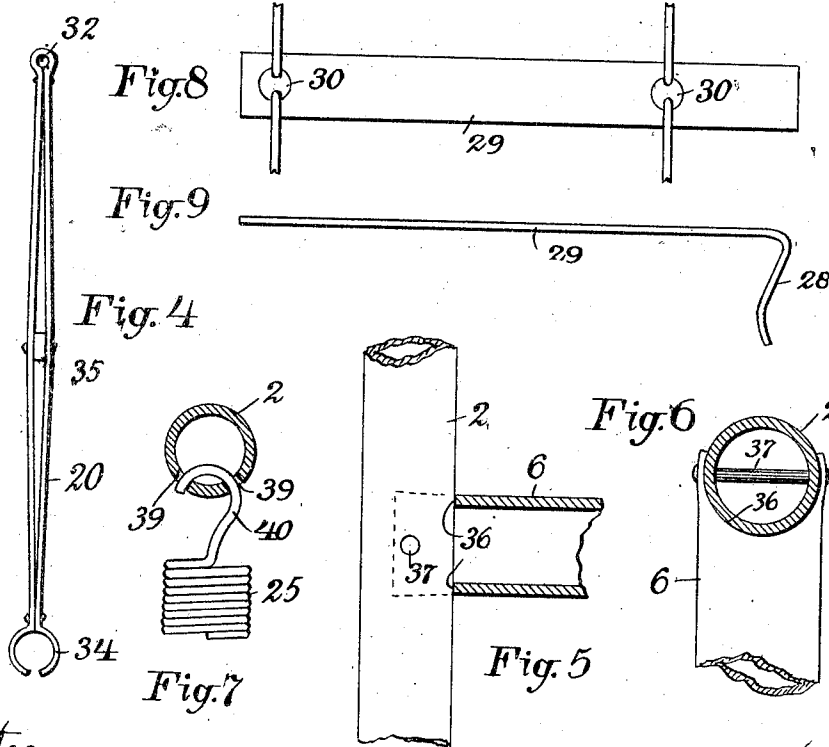
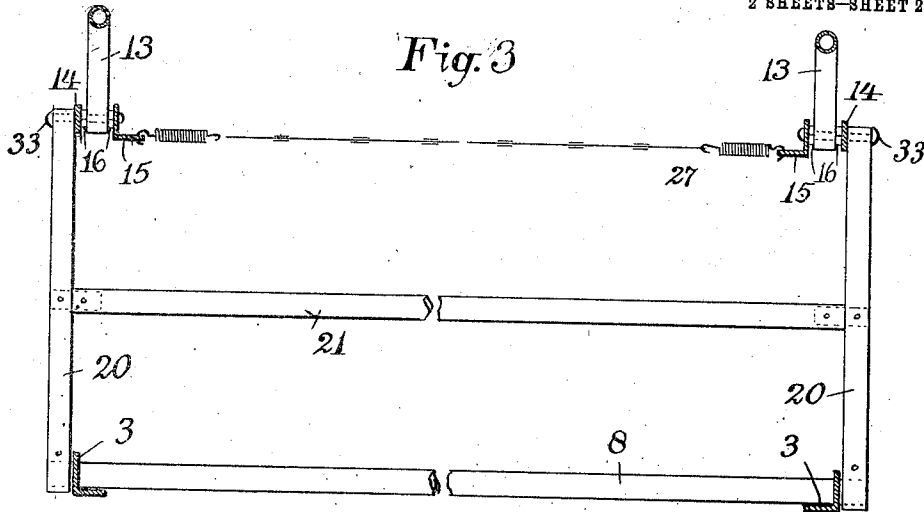
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980,631.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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COUCH-BED.

980,631.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed November 11, 1908. Serial No. 462,109.

To all whom it may concern:

Be it known that I, WILLIAM P. HAM-
MOND, a citizen of the United States, and a
resident of Rockland, in the county of Plym-
outh and Commonwealth of Massachusetts,
have invented certain new and useful Im-
provements in Couch-Beds, of which the
following is a specification.

This invention relates to that type of
couch beds wherein two semi-bed frames and
mattresses are adapted to be changed at will
into either a full width bed or a couch, by
swinging one of the frames or sections up
and forward from the other; and it has for
its object the effecting of the improvements
in details of construction hereinafter set
forth.

Referring to the drawings forming part
of this specification, Figure 1 is a perspec-
tive view of one end of a couch bed made in
accordance with my invention, the same be-
ing shown as a full width bed. Fig. 2 is a
similar perspective view, but showing the
couch bed in its couch form. Fig. 3 is a ver-
tical longitudinal section of a portion of the
bed showing the means for bracing one part
of the mattress supporting springs. Fig. 4
is a detail view of one of the arms forming
one of the members of said bracing means.
Fig. 5 is a detail view partly in section illu-
strating my method of uniting the legs and
longitudinal bars of the bed. Fig. 6 is a
sectional view on a plane at right angles to
that of Fig. 5. Fig. 7 is a sectional view
showing my manner of attaching the equal-
izing springs to the frame. Fig. 8 is a plan
view of one of the engaging hooks for se-
curing the spring-sections together. Fig. 9
is a side view of the same.

The couch bed composing the subject mat-
ter of this application is in two sections,
one of which is adapted to be superposed
upon the other for forming the couch; and
for being lifted up and to one side of the
other to constitute the bed. To this end,
two links or arms are pivoted to each end
of the structure for the purpose of maintain-
ing a parallel motion of the movable section,
and equalizing springs are provided for re-
siliently supporting the last named section
and reducing the exertion required for such
movements. As the ends of this couch bed are
duplicates of each other, I do not show both,

but illustrate one end only of the two sec-
tions. The end of the stationary section 1
consists of the approximately semicircular
length of tubing 2, the extremities of which
rest upon and are fixed to the angle iron
base 3, which in turn is carried by suitable
casters 4. To the inner face of the arch or
tubing 2, near its upper part, is fixed the
angle iron 5 with its horizontal web above
instead of below as in the case of the angle
iron 3. This angle iron has its horizontal
web apertured for the engagement of the
mattress springs in the usual manner. The
two arches 2 are rigidly secured together by
the two longitudinal tube-bars 6, braces 7,
and the rock-shaft 8 passing transversely
through the mid-lengths of the angle iron
bases 3.

The movable bed section 10 has each end
comprise a length of tubing bent to form a
leg 11, a horizontal part 12, and a rudimen-
tary leg 13. Such legs are joined by the
bar 14 and the angle iron 15 riveted or bolt-
ed to opposite faces, and with nuts or wash-
ers 16 holding such bar and angle iron
farther apart and out of contact with said
legs. By thus separating said bar and angle
iron, ample space is allowed for the recep-
tion of the arch 2 when the movable section
10 is superposed upon the stationary section,
as shown in Fig. 2.

The leg 11 of each end frame is rigidly
connected with the other by the tube 17 and
braces 18; but the rudimentary leg 13 can-
not be thus braced because of interference
with the parts of the stationary section 1.
To properly brace it against the pull of the
mattress-springs, the arm 20 is pivoted
thereto, as shown in Figs. 1 and 2; the lower
end of such arm being fast upon the extrem-
ity of the rock-shaft 8. Extending midway
of the two arms 20 is the bar 21, also pref-
erably tubular as are the other longitudinal
bars; as shown in Figs. 3 and 6. The lower
ends of said arms being tied together by the
said rock shaft, and braced against pulling
together, by the bar 21, the strain of the
mattress springs upon the ends of the angle
irons 15 attached to the rudimentary legs
13, is strongly resisted. At the same time,
such legs 13 can be swung over the arch 2
upon the rock shaft as a center, with per-
fect freedom; the arms 22 pivoted to the

midlengths of the bars 14 and the ends of the bases 3 serving to preserve the parallelism of the movable bed section while being thus swung over upon, or away from, the stationary section.

The equalizing springs 25 for resiliently supporting the movable bed section have their upper ends attached to the arches 2, and their lower ends to the brace bar 21. The points of attachment to the arches being directly over the rock-shaft 8, said springs are made to exert their maximum lifting force upon the movable bed section when the latter is in the two extremes of its movement, while in mid-movement, with the arms vertical and the movable section at its highest point of rise, said springs will be exerting their minimum effect. Consequently, the movable bed section is resiliently supported in such a manner as to require almost no force to move it at any part of its travel. Neither does it fall at either extreme of its movement, but will remain poised at any altitude.

As illustrated in Fig. 1, when the movable bed section is drawn forward, the leg 11 is supported by the floor, and the opposite side of said section has its angle irons 15 terminally rest upon the ends of the angle irons 5 of the stationary bed section; for such purpose and also to enable the bed sections to close more snugly together, the angle irons 15 have their vertical flanges ascend, while those of the angle irons 5 descend. This also permits the mattress springs 27 to lie in substantially the same plane, both when used as a couch and as a bed.

Hooks 28 are secured to the inner edge of the movable mattress springs, as shown in Fig. 1, in such a manner that as said springs swing down into place, said springs engage the edge of the stationary springs and so cause the said two sections of springs to act as a single large one. As shown in Figs. 8 and 9, each said hook is formed from strap metal, with a shank 29 long enough to span two strands of the mattress springs, and to be attached thereto by means of the holes 30 having the wires in said two strands hooked into such holes. The hook part 28 itself is bent in at an oblique angle, substantially straight for a short distance, and then curved outward slightly. I find that this slight outward curve aids the hooks in engaging the wires of the stationary mattress springs, while the oblique bend is ample to insure that the adjacent edges of the mattress springs shall remain in engagement while in use, and will at the same time be sure to be released when the upward and rearward lift is given to the movable bed section.

Another improvement in detail is the specific construction of the arms 20. As shown

in Figs. 1, 2 and 4, each said arm is preferably formed from strap metal, bent at mid-length to provide an eye 32 for the pivot pin or bolt 33, and its ends are curved to form a socket 34 for clasping the rock shaft 8. At mid-length of each said arm is a narrow block 35 inserted between the two members of the arm and suitably fixed therein, as by a rivet; such block being a part of a plug fixed in the end of the tubular rock shaft. This construction provides an arm both light and strong, and, in effect, a truss; the main strain which is to be met thereby being parallel with the rock-shaft.

Another and most important improvement is my method of attaching the longitudinal tubes to the arch 2 and leg 11. Previous to my invention, it has been the universal custom to flatten the ends of said tubes and rivet such flattened ends to the face of the upright members. Instead of that, I punch a semicircular notch, of somewhat more than a semicircle, in each end of the tube, in order to clasp the same partially about the upright, and then pass the rivet or bolt through the same, as shown in Figs. 5 and 6. In said figures, the tube 6 is illustrated as thus fixed to the upright 2 by such concave ends 36 and rivet 37. Inasmuch as the upper and under parts of the said tube butt against the surface of the upright both above and below the level of the rivet 37, the joint thus formed is adapted to resist flexure to the full strength of the metal, and consequently braces the frame of the bed in a powerful manner.

Instead of attaching the spring 25 to the arch 2 by an eye riveted or otherwise fastened thereto, I prefer to form the two small holes 39 at the proper point through the under periphery of the tube composing such arch, as indicated by Fig. 7. These holes readily receive the hook 40 of said spring, and retain it with perfect security, while still permitting the oscillation of the spring as the movable bed section is swung back or forward.

As indicated in the drawings, the springs which I prefer to employ for each section are of the well-known "National" type, which consists of wire links joined to each other in longitudinal and transverse rows, with the tension springs hooked into engagement with the longitudinal rows and also with the angle irons 5 and 15 of the end frames.

What I claim as my invention, and for which I desire Letters Patent is as follows, to wit;—

1. A combined bed and couch comprising a stationary section and a movable section, the movable section being adapted to be swung up and forward from the stationary section, a longitudinal shaft carried by the stationary section, arms rising from the ends

of said shaft and pivoted at their upper ends to the same side but opposite ends of the movable section, mattress springs tensioned between the ends of the movable section, and
5 a longitudinal bar fixed at its extremities to intermediate points of said arms; each said arm being formed from strap metal doubled at the upper end to provide the eye for said pivot, and having its extremities
10 bent to clasp said shaft; a plug being secured between the doubled parts of said arm and composing the fastening means for fixing an end of said bar thereto.

2. A combined bed and couch comprising
15 a stationary section and a movable section, parallel arms at each end of the same pivoted to both sections, and a tension spring at each end attached at its lower end to an intermediate point of one of said arms and
20 at its upper end to a part of the stationary section vertically above the lower pivot of the last-named arm, said part of the stationary section being tubular and having two small closely disposed holes in the same
25 transverse plane, and the end of the spring

thereat being formed with a hook passing through said holes.

3. A combined bed and couch comprising a stationary section and a movable section, the stationary section having end frames 30 the main part of each of which is a tubular bar bent into a substantially semicircular form, the movable section having end frames the main part of each of which is a tubular bar bent to constitute a vertical leg, a hori- 35 zontal section and a rudimentary leg, the two end frames at each end of the couch-bed being in the same vertical plane, the movable section being adapted to be swung up and forward from the stationary section 40 and said rudimentary legs to move along but out of contact with the periphery of the semicircular frame-bars.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 45 3rd day of November 1908.

WILLIAM PARKER HAMMOND.

Witnesses:

CLARENCE H. YOUNG,
GILES W. HOWLAND.