

(No Model.)

T. B. ROBERTS.

ROTARY SHUTTLE FOR SEWING MACHINES.

No. 267,020.

Patented Nov. 7, 1882.

Fig. 1

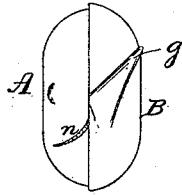


Fig. 2.

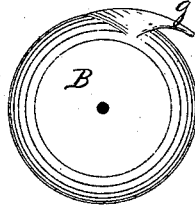


Fig. 3

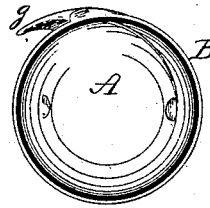


Fig. 4.

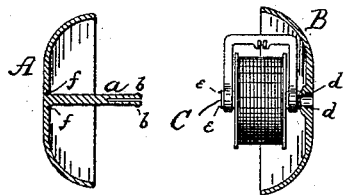


Fig. 6

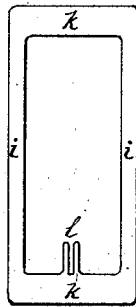


Fig. 7.

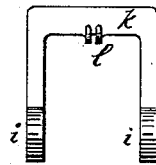


Fig. 8

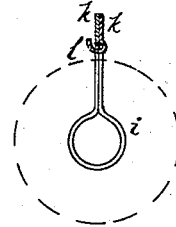
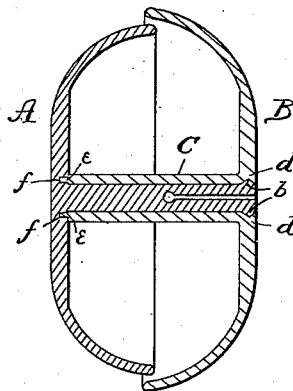


Fig. 5.



WITNESSES:

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THOMAS B. ROBERTS, OF PITTSBURG, PA., ASSIGNOR OF TWO-THIRDS TO
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ROTARY SHUTTLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 267,020, dated November 7, 1882.

Application filed February 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. ROBERTS, of
Pittsburg, in the county of Allegheny and State
of Pennsylvania, have invented certain new
and useful Improvements in Rotary Shuttles
for Sewing-Machines; and I do hereby declare
that the following is a full, clear, and exact de-
scription of the invention, which will enable
others skilled in the art to which it appertains
to make and use the same, reference being had
to the accompanying drawings, which form a
part of this specification, in which—

Figure 1 is an edge view of my shuttle.
Figs. 2 and 3 are front and back views respec-
tively. Fig. 4 shows in section the two parts
separated with bobbin and tension in position.
Fig. 6 shows the blank for tension and thread-
guide. Fig. 7 is a front view of same bent to
shape. Fig. 8 is an edge view of same. Fig.
5 is an enlarged section of shuttle without bob-
bin or tension.

This invention relates to the construction of
sewing-machine shuttles of the class known as
"rotary" shuttles; and it consists in the con-
struction and combination of parts, substan-
tially as hereinafter fully described and
claimed.

This shuttle is in two parts, which are at-
tachable together, hollow inside, and carrying
a loose bobbin, with a tension and thread-guide
so arranged as to deliver the thread without dis-
turbance its twist in either direction. More
particularly my invention is as follows:

As before stated, this shuttle is in two parts
or shells, A and B, both semi-spherical in shape
and hollow, as shown. Shell A has the stem
a, which is slitted at the end and provided
with projections *b*, as shown in the enlarged
view, Fig. 5, which forms a snap-catch to at-
tach the shell A to shell B. The shell B has a
hollow spindle, *c*, which fits over stem *a* of shell
A, and has the recesses *d* to receive the pro-
jections or catches *b* of stem *a*. By this con-
struction the two shells are held together with
sufficient force, but may be separated by sim-
ply giving them a smart pull apart. To effect
the revolution of both shells together, I pro-
vide the spindle *c* with one or more studs, *e*,
and at a corresponding point in the shell A, I

locate one or more recesses, *f*, so that when the
two shells are attached together the studs *e*
and recesses *f* form a clutch or crab to insure
simultaneous movement of the two shells.
When thus locked together it will be observed
that there is a slit between the rims of the two
shells all the way around; but I prefer to have
the shell B slightly larger than and overlap-
ping shell A, for a purpose to be hereinafter
explained. Shell B is provided with the loop-
catcher or "horn" *g*, whose point is about on a
line with the outer face of the shell, or slightly
overhauling it, whence it retreats backwardly,
in a slanting direction, to the rim or lip of the
shell, so that once the loop is caught the revo-
lution of the shell forces the loop to follow
along the inclined side of the horn *g* till the
thread of the loop arrives at the rim of shell
B, where it drops over the base of the horn,
and which prevents it from slipping off the
shuttle and dropping the stitch. After pass-
ing the horn the thread of the loop glides over
the rim of shell B, and as it cannot return it
is compelled to slide around the shell A, or, to
speak more correctly, the effect is that the revo-
lution of the horn *g* draws the loop in such
manner as to envelop itself once every revolu-
tion. The overlapping of shell A by the rim
of shell B renders this enforced path of the
loop more certain, and renders it impossible
for the loop-thread to drop into the space be-
tween the shells.

Before setting the shells A B together the
bobbin C (having sufficient thread wound upon
it) is slipped over the spindle *c*, and the end
of the thread brought out through the circum-
ferential slit between the shell-rims. Bobbin
C is loose upon the spindle *c*, so that while the
spindle revolves as a part of shell B the bob-
bin may remain comparatively stationary, mov-
ing only enough to reel off its thread; but as
a continued revolving of the spindle *c* would
by friction soon impart a continuous move-
ment to the bobbin, I insert a sort of brake or
tension inside the shuttle. This tension con-
sists preferably of a piece of sheet-steel of the
form shown at Fig. 6, which is bent up to form
the two eyes *i* to ride upon the spindle *c*, and
the end portions of the blank are brought to-

gether and form the spring-lips *k*, which bridge the bobbin *C*, as illustrated, the fork *l* being curved upwardly, as shown, under the lips *k*. The whole device *i k l*, I call the "tension and thread-guide." In inserting the bobbin *C* into the shells, the tension and thread-guide is set on the spindle so as to straddle the bobbin. The thread of the bobbin is passed between the prongs of the guide-fork *l*, and then between the two spring-lips *k*, which press the thread between them with a light pressure. The two shells are snapped together after bringing the end of the thread outside. The shuttle-thread being brought up through the throat-plate, drawing it tight lifts the tension and guide *k l* into a vertical position surmounting the bobbin *C*, and in about that position it remains while the shuttle revolves, delivering the thread as it is needed, allowing the bobbin to reel it off, but exercising a sufficient restraint upon the thread, and this without in any way twisting or untwisting the thread—a result of much importance and essential to the success of a rotary shuttle.

25 The exterior of shell *A* may have the groove or furrow *n*, retreating spirally from a point under and slightly to the rear of the point where the inclined edge of the horn *g* terminates, so as to lead the loop properly.

30 The shuttle may be revolved by a crab or claw catching in depressions on the face of shell *A*, but allowing such play that the loop may pass between the claw ends and the shell without obstruction.

35 It will be seen that the tension or pressure on the thread varies itself automatically according to the thickness of the thread used. A thick thread passing through the lips will pull much harder than a fine thread, and this is as it should be in order to have a proper tension suited to the different sizes of thread. As no screws or other devices are used, but simply

the natural spring of the lips, the tension is self-acting in the truest sense, and I therefore call it "automatic." It is independent, for the reason that it is not permanently attached to the shuttle, but is simply contained therein, and moves at its own rate of speed independently of the revolution of the shuttle. While it is perhaps a part of the shuttle, and is necessary to it, yet it is dependent for action solely upon the thread passing between its lips.

I claim as my invention—

1. The rotary shuttle composed of the two hollow shells *A B*, having a thread-opening between them, and a bobbin-spindle, one of said shells having the projecting horn *g*, substantially as described.

2. In a rotary shuttle, the shell *A*, having spring-stem *a*, provided with catches *b*, in combination with shell *B*, having horn *g*, and hollow spindle *c*, provided with recesses *d*, substantially as described.

3. The rotary shuttle composed of the two hollow shells *A B*, having circumferential thread-opening between them, and a bobbin-spindle, shell *B*, having horn *g*, and constructed with its rim overlapping that of shell *A*, substantially as described.

4. In a rotary shuttle carrying an inclosed bobbin, an automatic tension independent of the shuttle and inclosed therein, substantially as described.

5. In a rotary shuttle carrying an inclosed bobbin, an automatic tension and thread-guide independent of the shuttle and inclosed therein, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

THOS. B. ROBERTS.

Witnesses:

T. J. MCTIGHE,
THOMAS J. PATTERSON.