2 Sheets--Sheet 1.

F. KOCH & R. BRASS.
Sewing-Machine.

No. 138,898. Patented May 13, 1873.

Fig. 1.

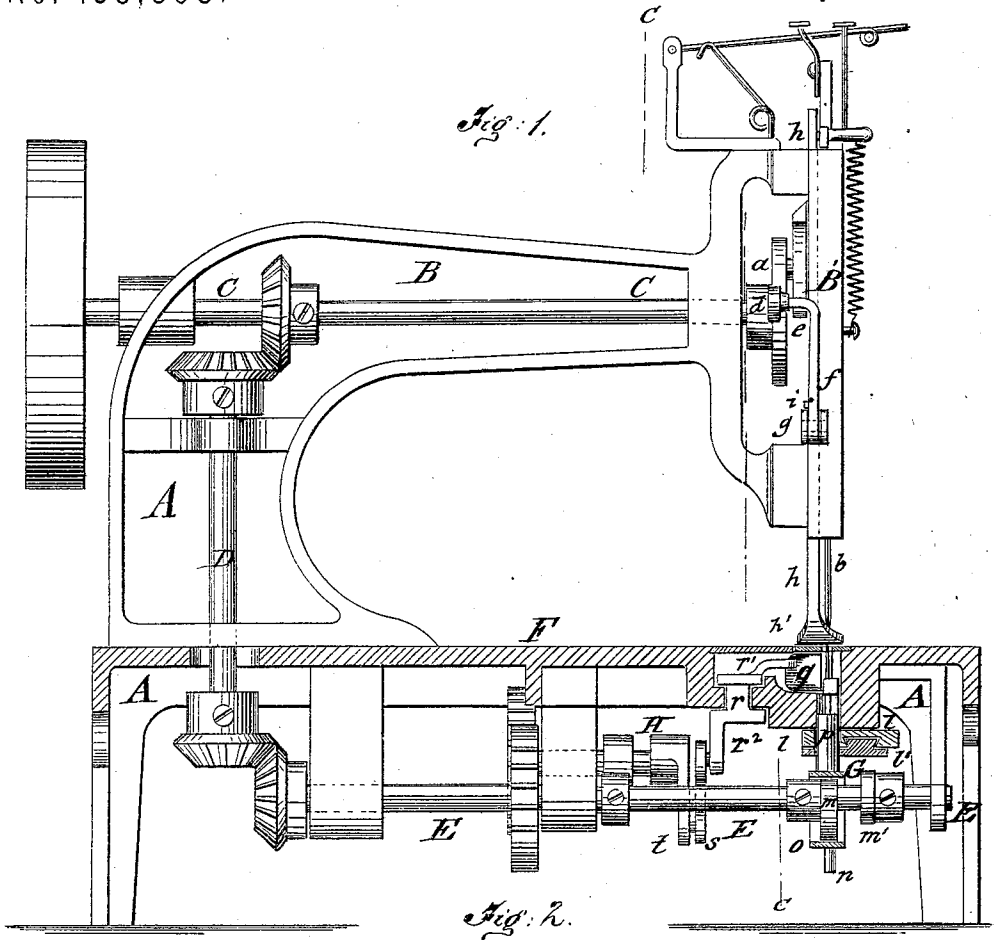
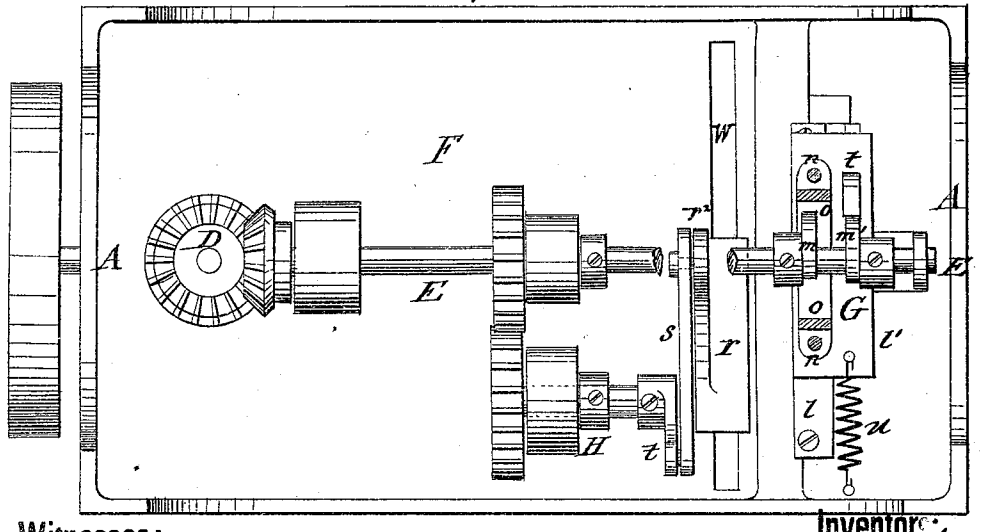


Fig. 2.



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2 Sheets--Sheet 2.

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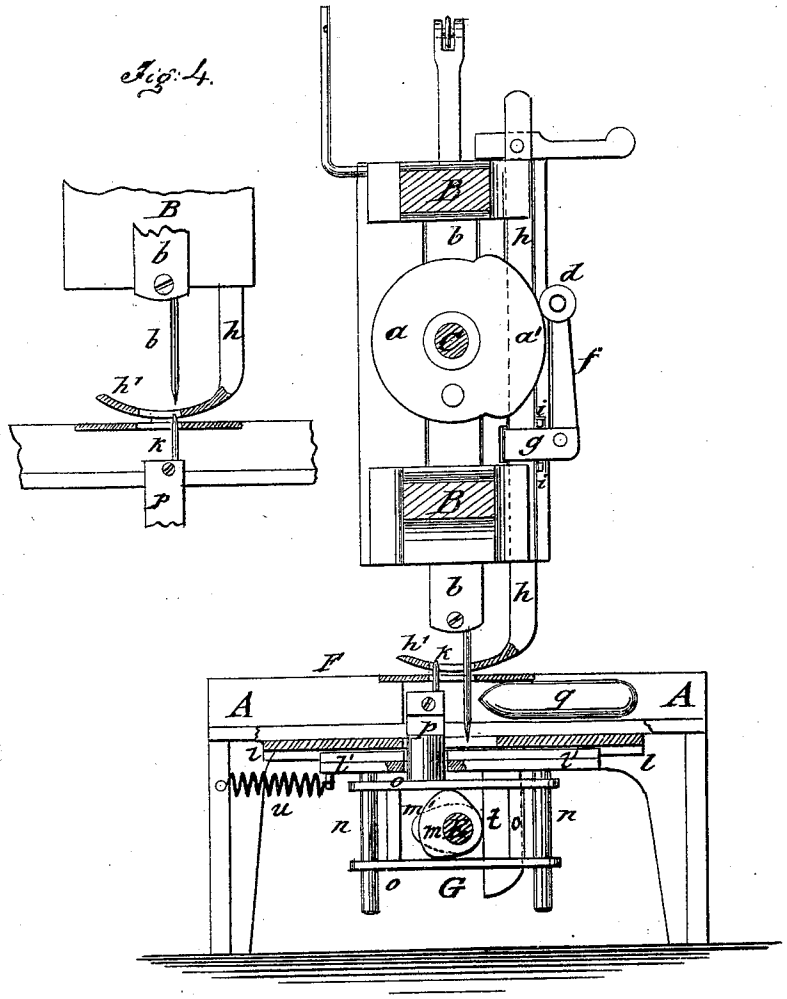
Fig: 3

Fig: 4.



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UNITED STATES PATENT OFFICE.

FRIEDRICH KOCH AND ROBERT BRASS, OF BROOKLYN, ASSIGNORS TO JOHN BOYLE, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **138,898**, dated May 13, 1873; application filed March 1, 1873.

To all whom it may concern:

Be it known that we, FRIEDRICH KOCH and ROBERT BRASS, of Brooklyn, in the county of Kings and State of New York, have invented Improvements in Shuttle Sewing-Machine, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of our improved awl-feed sewing-machine, partly in section; Fig. 2, a bottom view of the same, with part of the lower feed-shaft broken off to show crank-connection of shuttle; Fig. 3, a vertical transverse section on the line *c c*, Fig. 1, showing awl-feed in connection with cam-wheel and pressure-lever; and Fig. 4, a detail section of awl-feed.

The invention consists in the improvement of sewing-machines for heavy fabrics, as hereinafter described, and subsequently claimed.

In the drawing, A represents the frame of a sewing-machine. The horizontal standard B supports the main shaft C, which drives, by suitable gearing and shaft D, the feed-shaft E, placed below the face-plate F. At end of main shaft C is applied the wheel *a*, which transmits motion to the needle-bar *b*. A segmental cam-extension, *a'*, of wheel *a* acts on a small friction-roller, *d*, at upper end *e* of elbow-lever *f*. This lever is pivoted to a slotted block, *g*, confined in a recess of the head-piece B. The presser-shank passes through this block, and a gib, *i*, is placed between the shank of the presser and the short arm of the elbow-piece that also projects into the block. When the awl is about to penetrate the material its cam *a'* strikes the roller, turns the elbow, and through the gib and block the presser is held firmly in position, so that it cannot rise under the action of the awl. The awl-feed is arranged perpendicularly under the needle, and the pressure-foot *h'* below the plate F. The rotary motion of feed-shaft E is transferred to the awl-carriage G, which imparts the proper motion to awl K. The carriage G moves in the dovetailed groove of guide-rail *l*, and consists of guide-piece *l'* with vertical lug *t* at one side, and spiral spring *u* at other side, which gives, by means of oval cam *m'* keyed to shaft E, reciprocating motion to the awl. Vertical bolts *n* guide the rectangular plate O O, which carries the awl-socket *p*, and imparts, by cam *m* of shaft E, ascending and descending motion to awl K. The combination of both motions causes awl K to ascend through the throat-plate, pierce the fabric held there by pressure-foot *h'*, feed the same to the descending needle, which follows the receding awl, and enters the hole from above, carrying the burr toward the interior of the fabric, producing an even surface. The shuttle-driver is operated in its race through link S and crank *t* of auxiliary shaft H. Suitable cog-wheels, keyed to shafts E and H, impart motion to the shuttle-actuating crank without interfering with the feed-shaft E. The latter serves mainly to overcome the resistance of the fabric in feeding, being not weakened by the shuttle-connection.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The lever and block, in combination with and for intermittently holding the presser, as set forth.

FRIEDRICH KOCH.
ROBERT BRASS.

Witnesses:
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