

(No Model.)

H. JANSSEN.
BRAIDING MACHINE.

4 Sheets—Sheet 1.

No. 573,598.

Patented Dec. 22, 1896.

Fig. 1

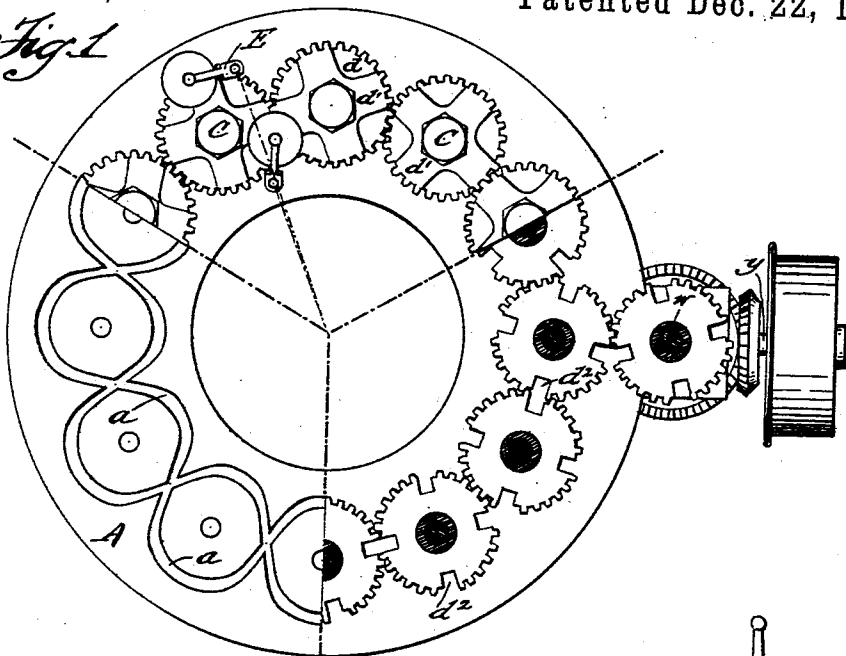
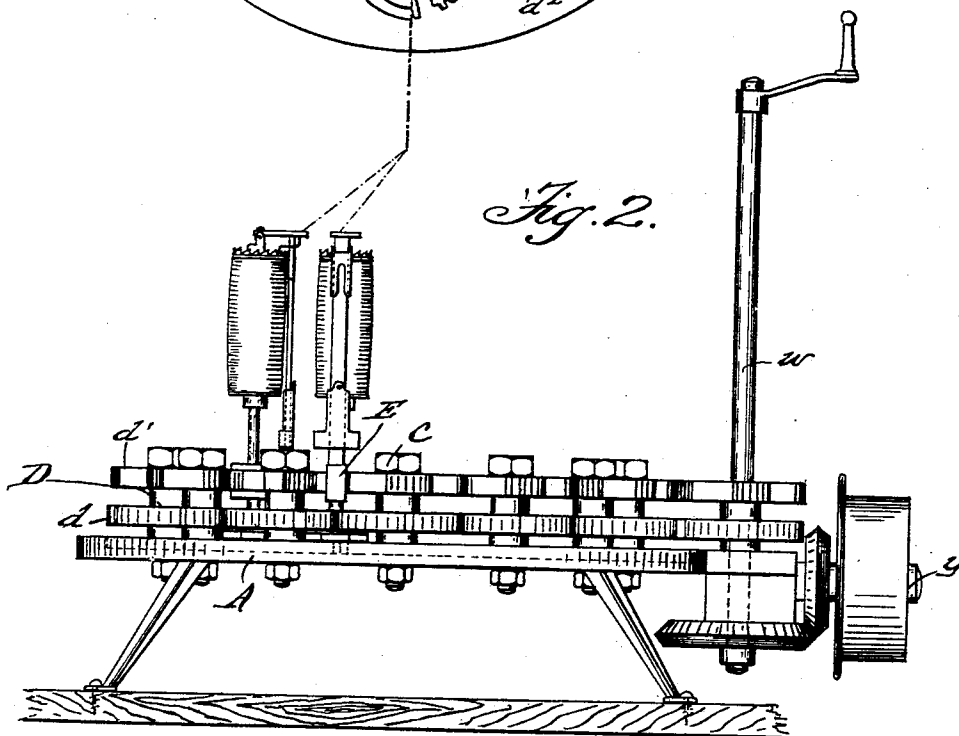


Fig. 2.



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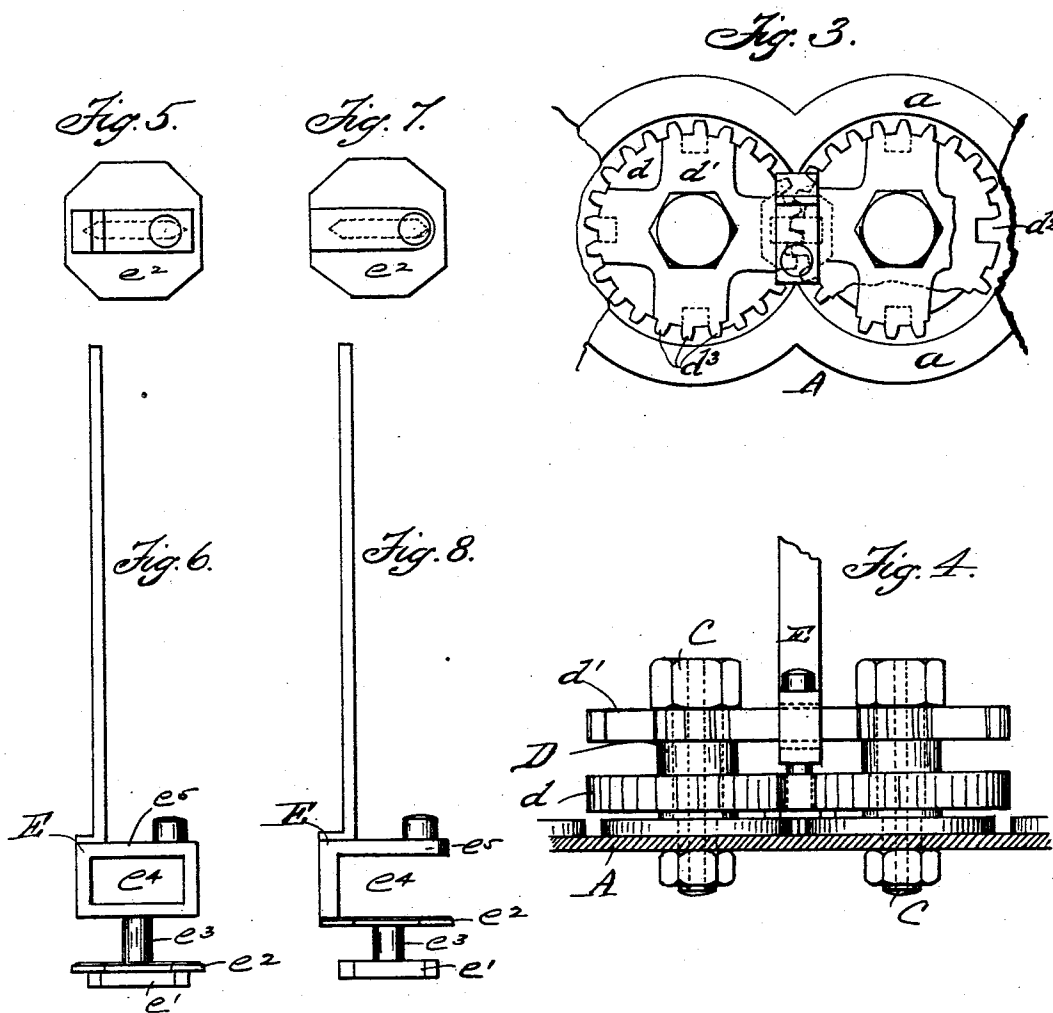
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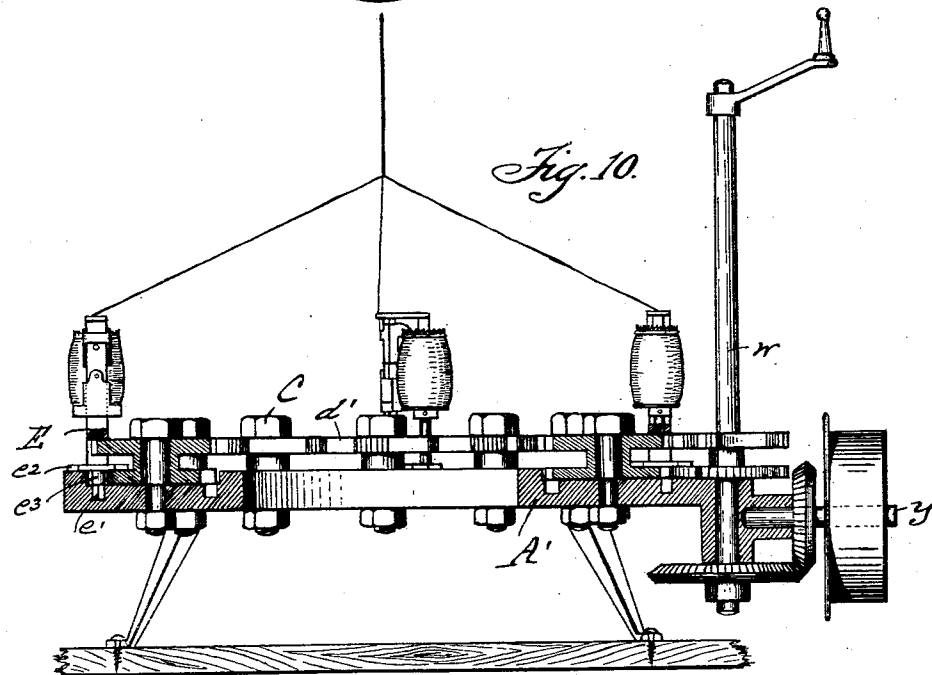
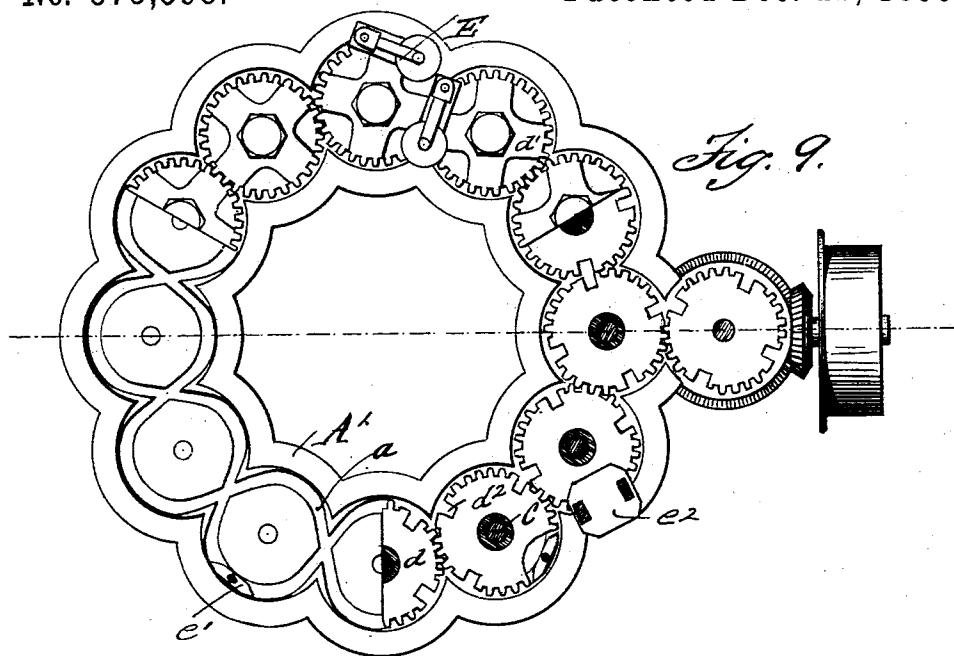
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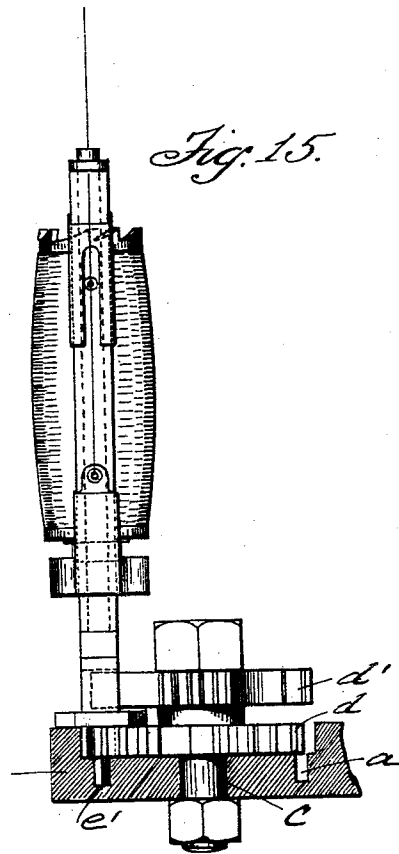
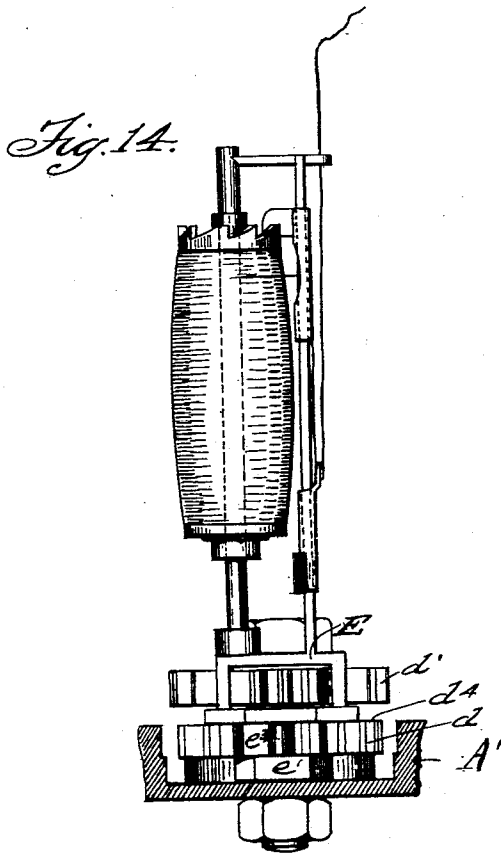
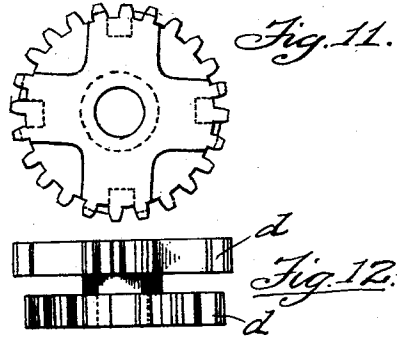
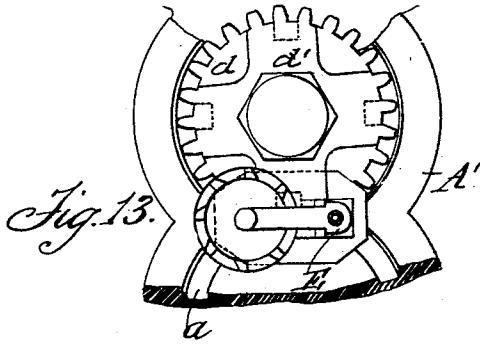
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4 Sheets—Sheet 4.

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BRAIDING MACHINE.

No. 573,598.

Patented Dec. 22, 1896.



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UNITED STATES PATENT OFFICE.

HENRY JANSSEN, OF READING, PENNSYLVANIA.

BRAIDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,598, dated December 22, 1896.

Application filed January 28, 1896. Serial No. 577,195. (No model.)

To all whom it may concern:

Be it known that I, HENRY JANSSEN, a citizen of the United States, residing at Reading, county of Berks, State of Pennsylvania, have invented certain Improvements in Braiding-Machines, of which the following is a specification.

My invention relates to braiding-machines, and more particularly to improvements in the construction and arrangement of the bobbin-carriers and the means for guiding and operating them, whereby I am enabled to secure great simplicity of construction and increased efficiency in operation.

The improvements relate especially to that class of braiding-machines shown in Patent No. 468,649, issued February 9, 1892, and in which a single plate is employed; and they consist, mainly, in the novel form of gear-wheels employed to drive the bobbin-carriers and the adaptation of the cooperating parts thereto.

The novel features are fully described in connection with the accompanying drawings and are specifically pointed out in the claims.

Figure 1 is a plan view of the bed-plate of a machine embodying my improvements, showing at one part thereof several complete gears with bobbin-carriers in position thereon, at another part showing the upper disk of the gear-wheels cut away, and at still another part showing the carrier guide-grooves uncovered. Fig. 2 is an elevation of the same. Figs. 3 and 4 are respectively a plan and sectional elevation, on an enlarged scale, of two meshing gears and a carrier passing between the same. Figs. 5 and 6 show the carrier in detail. Figs. 7 and 8 show a modified form of the same. Figs. 9 and 10 are respectively a plan view and sectional elevation in the main similar to Figs. 1 and 2, but showing a modified arrangement. Figs. 11, 12, 13, 14, and 15 are partial views illustrating, on an enlarged scale, the construction indicated in Figs. 1 and 2.

Referring more particularly to Figs. 1 to 8, inclusive, A represents the bed-plate, in which are formed grooves *a a* for guiding the bobbin-carriers, said grooves being shown arranged in intersecting wave-lines, as usual, curving around a series of equally-spaced posts or stud-bolts C. Upon these posts are

mounted my improved carrier-driving gears D D, the whole series of which mesh together and derive their motion from a single driving-shaft, as *w* or *y*. Each of these carrier-driving gears comprises two toothed concentric sections or disks *d* and *d'*, one of which is located above the other, with an intervening space into which the carrier extends, as will be described later. The lower of these disks *d*, as shown, has a portion of its toothed periphery cut away at intervals to form recesses *d*², so arranged as to engage the bobbin-carriers E and swing the latter in the curved path *a*. In forming these recesses, however, it is necessary to cut away the teeth of the disk *d*, so as to interfere with the proper meshing of the gears one with another, a difficulty which is very imperfectly overcome in the construction shown in the patent before referred to. In my improved mechanism the upper disk *d'* is provided to supplement the main disk *d* and is preferably formed of a series of arms or spokes, as shown, equal in number to the recesses *d*², and located directly above the latter with one or more teeth *d*³ on the end of each arm or spoke, adapted to replace those cut away in the disk *d* and insure the regular and smooth working of the gears. The spaces between the spokes or arms of the disk *d'* provide clearance for the bobbin-carriers E, which are of special construction to adapt them for use in connection with the novel form of drive-gears.

In Figs. 5 and 6 are shown in detail these carriers E, which are also indicated in position in Figs. 1, 2, 3, and 4. The guide tongue or runner *e'* travels in the grooves *a* of the bed-plate, and the flange *e*² laps beyond the groove in contact with the horizontal face of the gears, so that the latter shall serve to maintain the carrier in erect position and insure a steady motion in its serpentine course. This motion is derived successively from the series of drive-gears *d* by the engagement of the recess *d*² in the latter with the stem or pin portion *e*³ of the carrier in a manner similar to that employed in ordinary braiding-machines. The spacing or pitch of the teeth may be as small as desired without affecting the perfect operation of the machine, inasmuch as whatever teeth are cut away or mutilated in the portion *d* of the gear are entirely replaced by

the teeth d^3 in the disk d' . This, however, requires that the carrier E shall be formed as to properly support the bobbin and tension-weight above the gear without interference with this disk d' , and therefore I provide a clearance-space e^4 between the carrier-plate e^5 , on which the bobbin and weight are mounted, and the stem e^3 , as indicated in Fig. 6 or in the modified form of carrier shown in Fig. 8.

A further difference appears between the carriers shown in Figs. 6 and 8, respectively, which illustrates how the construction may be varied without departing from my invention. In Fig. 6 the carrier-flange e^2 is arranged to lie between the upper surface of the bed-plate A and the lower surface of the drive-gear d in the manner most clearly shown in Fig. 4. In the Fig. 8 construction this flange e^2 is arranged to lie between the upper and lower gear portions or disks d' and d , as shown in Figs. 9 to 15. In this latter arrangement the bed-plate A' is recessed in its upper face, so as to lower the gears D until the upper surface d^4 of the lower disk d of the gear is level with the unrecessed surface of the bed-plate. The flange e^2 of the carriers then extends into the space between the upper and lower disks d and d' of the gear, as stated, while the tongue e' runs in guides or grooves a below the gear-recess.

What I claim is—

1. In a single-plate braiding-machine the combination with the grooved bed-plate of bobbin-carriers guided therein and a series of

carrier-driving gears each comprising a lower disk with teeth cut away at intervals to form recesses adapted to engage and traverse the carriers and a superposed disk supplied with teeth at the parts corresponding with said recesses substantially as set forth.

2. In a single-plate braiding-machine as described the combination with the grooved bed-plate of bobbin-carriers guided therein, and carrier-driving gears, each consisting of two toothed disks located one above the other with an intervening space, one of said disks being recessed in its toothed periphery to engage and traverse the carriers, and the other supplied with teeth to complete the gears and recesses to permit the passage of the carriers between them substantially as set forth.

3. In a single-plate braiding-machine as described the combination with the grooved bed-plate and the carrier-driving gears as described, of bobbin-carriers guided in the grooves and driven by the gears, each of said carriers having a flange adapted to contact with a side of a driving-gear so as to maintain the carrier in erect position and an opening in the carrier to permit its passage between the disks d' of adjacent gears substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY JANSSEN.

Witnesses:

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