A. H. HELANDER, W. EATON & J. Z. COLLIER.

PINION HOUSING.

APPLICATION FILED MAR. 2, 1914.

1,141,544.

Patented June 1, 1915.

3 SHEETS—SHEET 1.

Fig. 1.

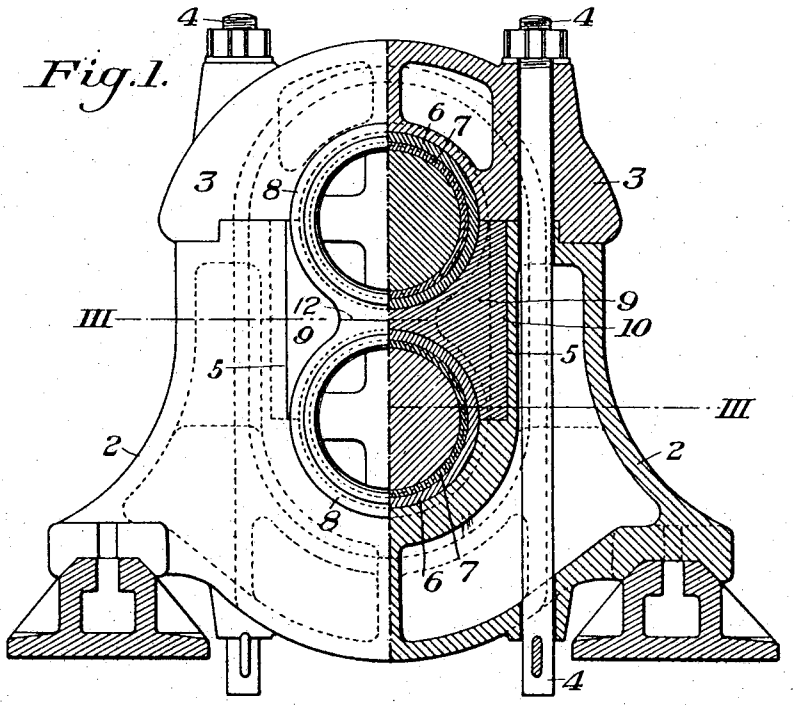
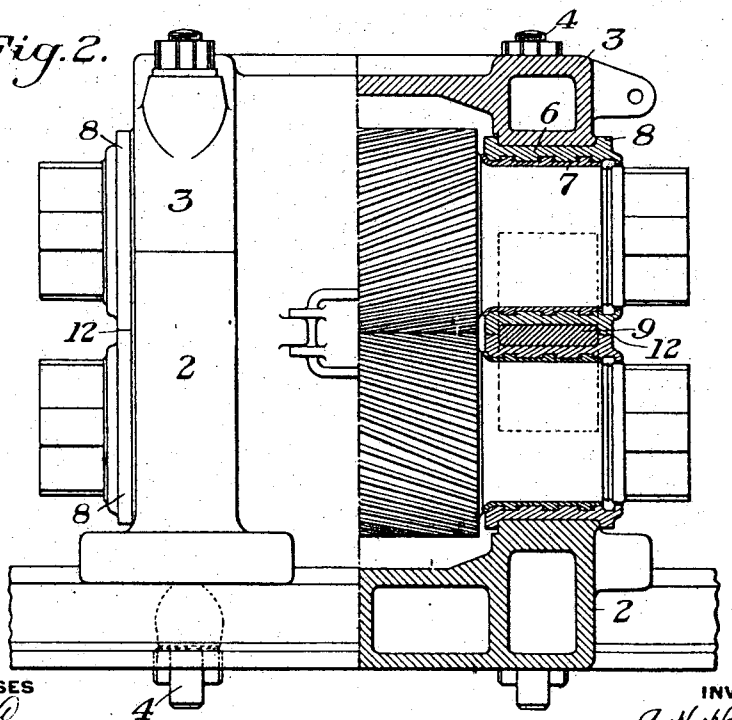


Fig. 2.



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3 SHEETS—SHEET 2.

Fig.3.

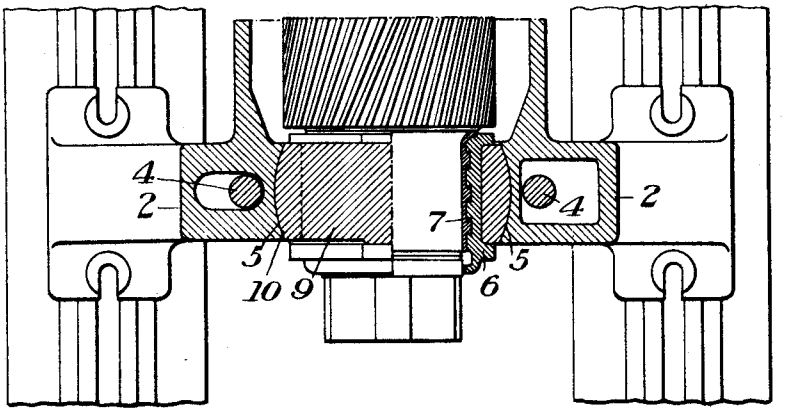


Fig.4.

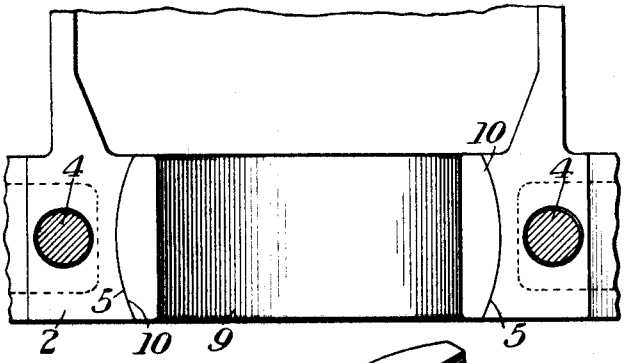


Fig.5.

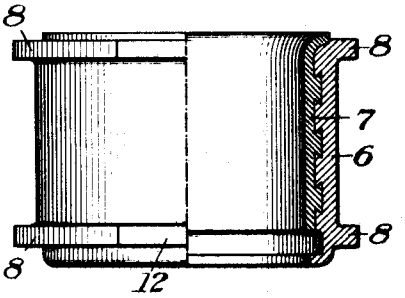
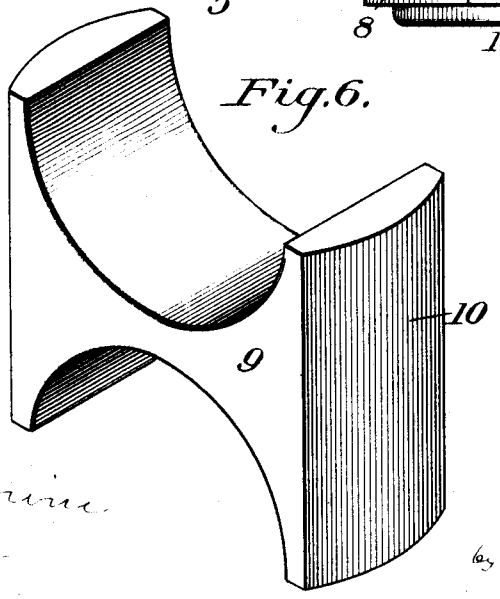


Fig.6.



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PINION HOUSING.

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3 SHEETS—SHEET 3.

Fig. 7.

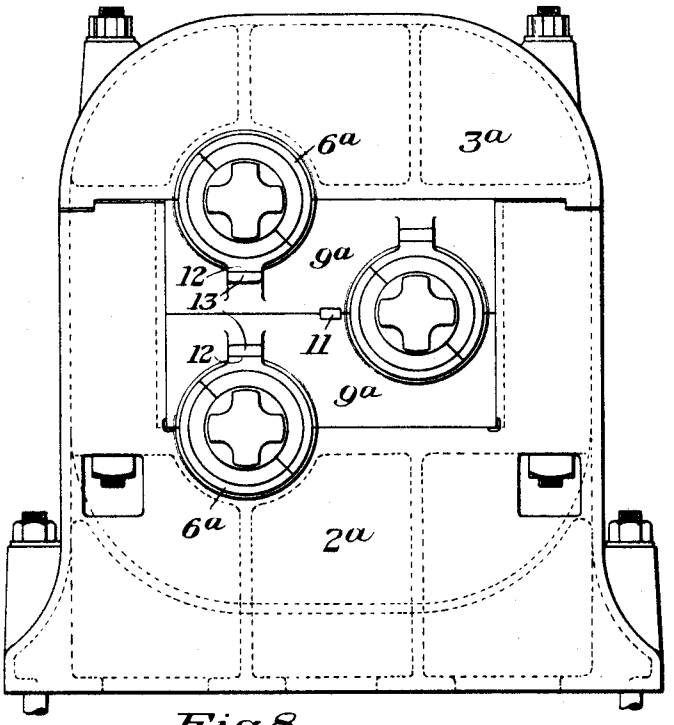


Fig. 8.

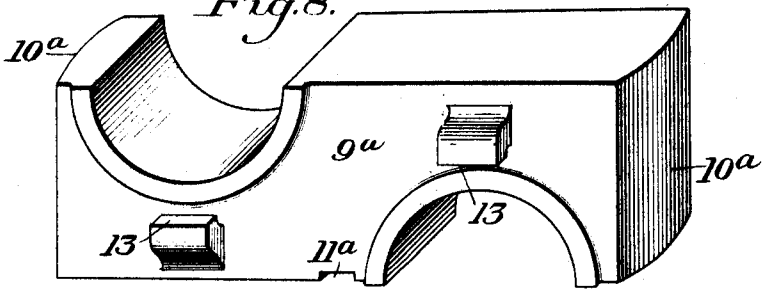
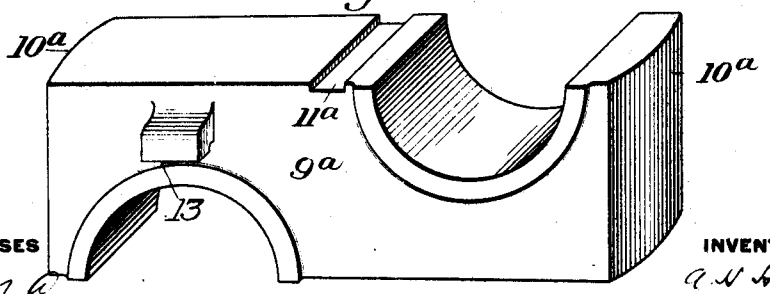


Fig. 9.



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UNITED STATES PATENT OFFICE.

AXEL H. HELANDER, WYMAN EATON, AND JOHN Z. COLLIER, OF YOUNGSTOWN, OHIO, ASSIGNORS TO THE WILLIAM TOD COMPANY, OF YOUNGSTOWN, OHIO, A CORPORATION OF OHIO.

PINION-HOUSING.

1,141,544. Specification of Letters Patent. Patented June 1, 1915.

Application filed March 2, 1914. Serial No. 822,033.

To all whom it may concern:

Be it known that we, AXEL H. HELANDER, WYMAN EATON, and JOHN Z. COLLIER, citizens of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented a new and useful Improvement in Pinion-Housings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end elevation partly in section of a pinion housing for jobbing mill, constructed in accordance with our invention. Fig. 2 is a front elevation of the same partly broken away. Fig. 3 is a section on the irregular line III—III of Fig. 1. Fig. 4 is a broken detail showing a partial top plan of the housing with the spacer block in place. Fig. 5 is a side elevation of the bearing shell partly in section. Fig. 6 is a perspective view of the spacer block. Fig. 7 is an end elevation showing the invention applied to a pinion housing for a plate mill, and Figs. 8 and 9 are perspective views of the spacing blocks employed in Fig. 7.

Our invention relates to pinion housings and is designed to give the strength and rigidity of an integral housing, while, at the same time, affording advantages of a divided housing.

In the drawings, referring to the form of Figs. 1 to 6 inclusive, 2 represents the housing having the usual cap 3 secured by through-bolts 4. The inner vertical faces of the housing are cut outwardly, as shown at 5, and these cut back faces are preferably concave in form, as shown in Figs. 3 and 4. The housing and the cap are provided with semi-cylindrical recesses to receive the bearing shells 6 for the pinion necks, these shells being preferably bushed or lined with babbitt 7, as shown. The shells are provided with flanges 8 which project over the inner and outer faces of the housing and cap and prevent endwise movement.

Between the bearing shells at each end of the housing we employ a spacing block 9, shown in Fig. 6, having outer convex faces 10 which fit the concave faces of the window recess, the top and bottom of this spacing block having semi-cylindrical recesses to fit the other half of the bearing shells.

In assembling the pinions in the housing, the shells 6 are slid on the neck of the lower pinion which is dropped into place. The spacing block 9 is then slid down into position and the upper pinion with its bearing shells in place is then dropped in. The housing cap is then fitted on and the through-bolts drawn up. The spacing block holds the upper half of the lower bearing shell and the lower half of the upper bearing shell in position and is itself held by the co-acting concave and convex faces between it and the housing.

In Figs. 7 to 9, inclusive, we show the invention as applied to a housing containing three pinions. In this form, the cap 3^a contains one semi-cylindrical recess for the upper half of one shell 6^a and at the bottom of the window the housing 2^a has a corresponding recess for the third shell 6^a. The third shell is held within semi-cylindrical mating recesses in the other portion of the spacing block 9^a which is made in two halves split to receive the third pinion shell. In this case again the vertical faces of the window and the co-acting faces of the bearing block are made of interfitting concave and convex form, and the parts are assembled in the same general way as before. In this split form of spacing block, a key 11 may be driven into the mating recesses 11^a between the halves to more effectively retain them in alinement.

In all the forms shown, the shells 6 or 6^a are prevented from turning by providing the outer flanges of the shells with flattened surfaces 12, which, in the form of Figs. 1 to 6, coact with each other, and in the form of Figs. 7 to 9 coact with flat-faced projections 13 on the spacing block to prevent rotation. These shells may be made either as a complete integral cylinder or may be made in halves or a plurality of parts. In Fig. 5, we have shown a complete shell 6, while in Fig. 7, we show the shells 6^a made in two semi-cylindrical halves.

The advantages of our invention result from the use of an integral housing while, at the same time, the advantages of a split housing are obtained. The interfitting faces of the bearing block and window may be varied to any desirable interfitting form, the spacer may be changed in form and size, and other changes may be made without departing from our invention.

By the words "spacing block" in the claims, we intend to cover the block whether made in one part or in a variety of parts.

We claim:

1. A pinion housing having a recessed window and a lower semi-cylindrical shell receiving recess, a removable spacing block within the window and having a plurality of shell receiving recesses, a cap having a corresponding shell receiving recess formed therein, a shell for receiving the pinion necks in one of the recesses in the spacing block and the recess in the housing, a similar shell in another recess in the spacing block and the cap, and bolts for securing the cap in position for retaining the shells and spacing block in position within the window; substantially as described.

2. A pinion housing having its window recessed at the side and a shell receiving recess in the bottom thereof, seats at the lower ends of the side recesses, a removable spacing block seated within the side recesses and resting on said seats, said spacing block having upper and lower recesses, a cap having a shell receiving recess, a shell for a pinion neck seated within the recess in the bottom of the spacing block and the window of the housing, a similar shell seated within the recess in the upper portion of the spacing block and cap, and securing bolts for securing the cap in position on the housing to retain the shells and spacing blocks in position; substantially as described.

3. A pinion housing having a recessed window and a lower semi-cylindrical shell receiving recess, a removable spacing block within the window and having a plurality of shell receiving recesses, a cap having a corresponding shell receiving recess formed therein, a shell for receiving the pinion necks in one of the recesses in the spacing block and the recess in the housing, a similar shell in another recess in the spacing block and the cap, bolts for securing the cap in position for retaining the shells and spacing block in position within the window, and means on the shells for preventing rotation of the shells relative to the housing; substantially as described.

In testimony whereof, we have hereunto set our hands.

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