

(No Model.)

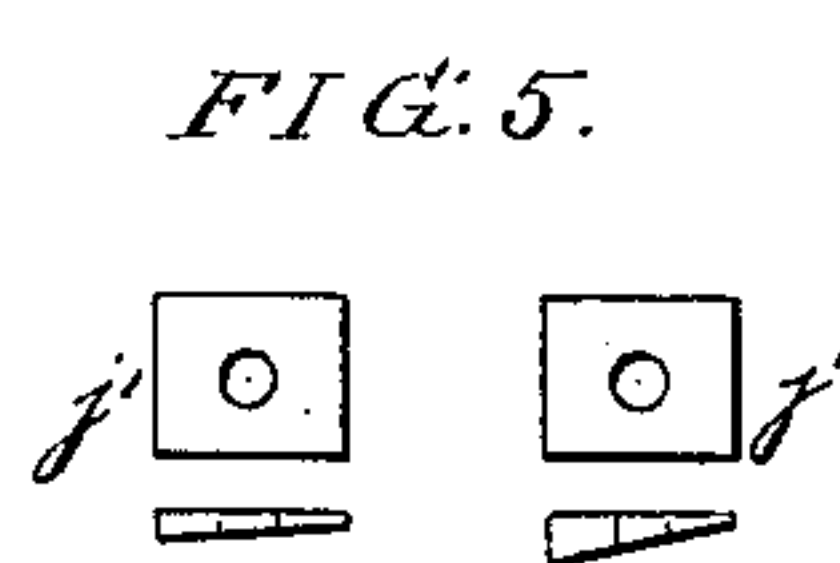
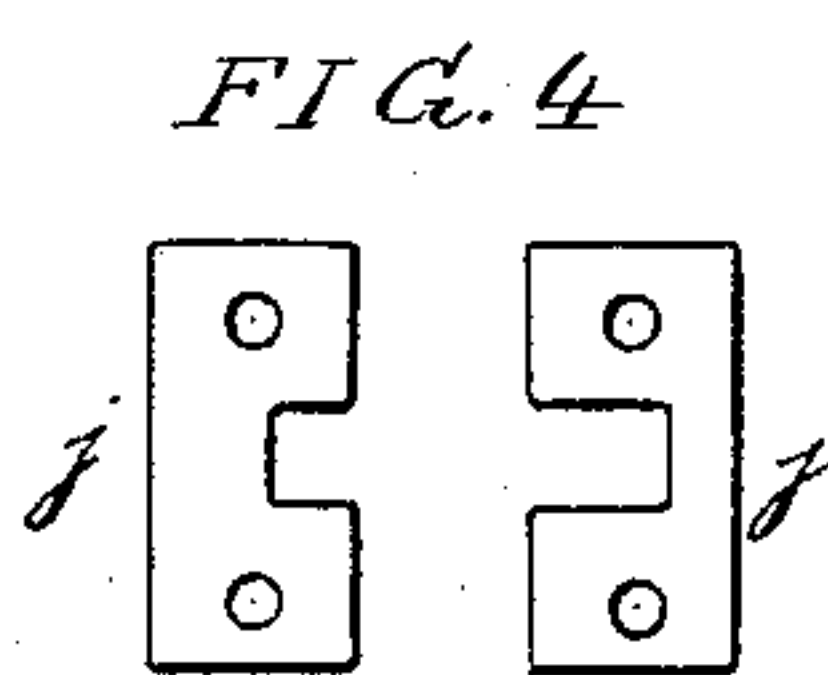
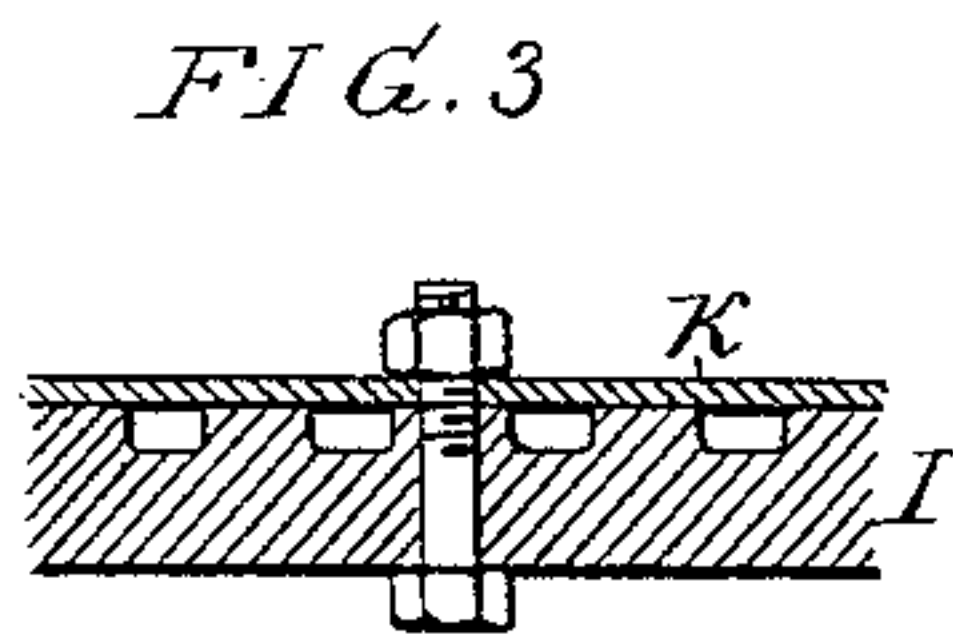
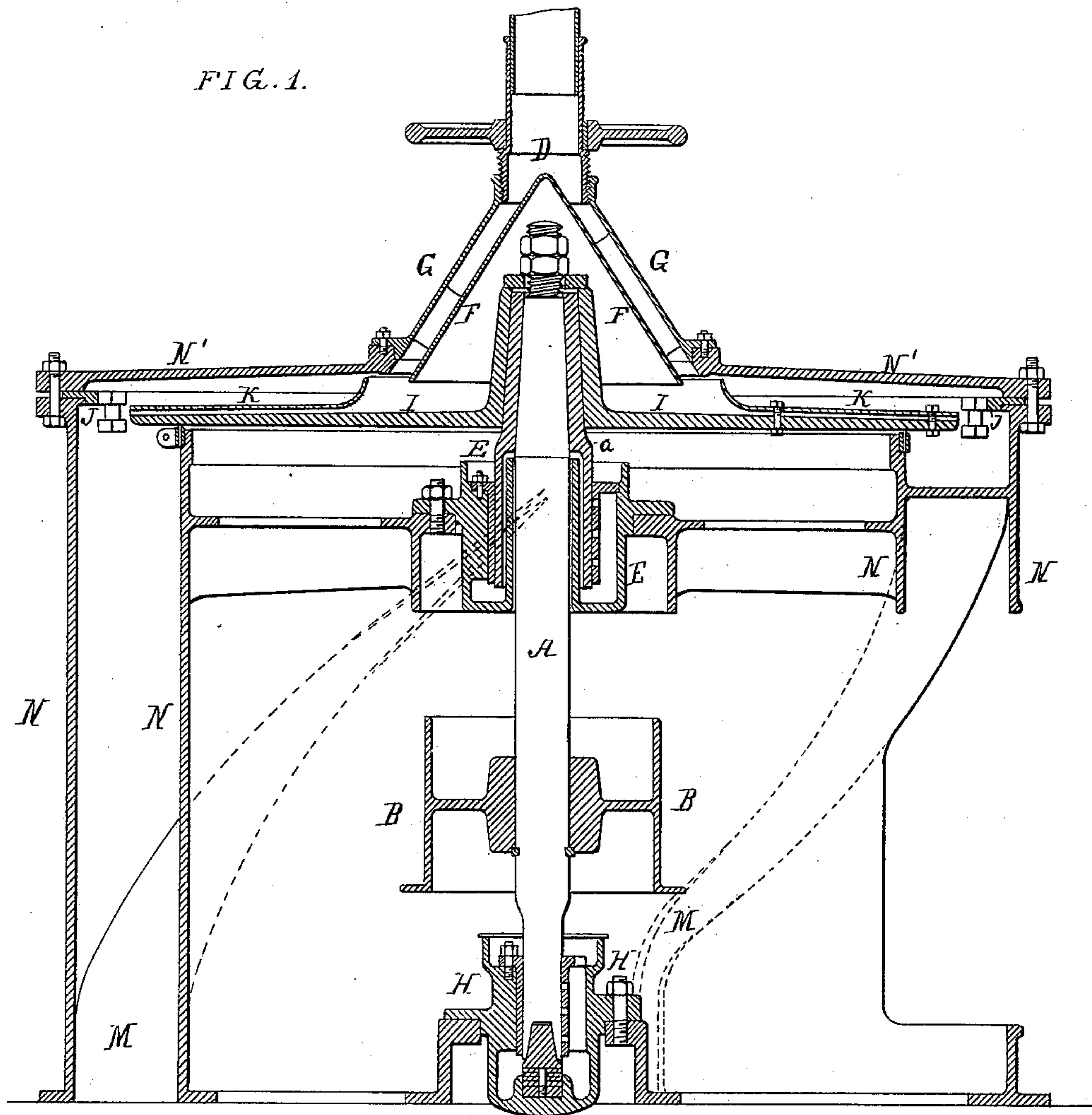
2 Sheets—Sheet 1.

H. F. ST. REQUIER.

MACHINE FOR THE REDUCTION OF GRAIN.

No. 332,006.

Patented Dec. 8, 1885.



Witnesses  
James F. Johns  
Hamilton D. Turner.

Inventor  
Henry F. St. Requier  
by his Attorneys  
Howson & Sons

(No Model.)

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FIG. 2.

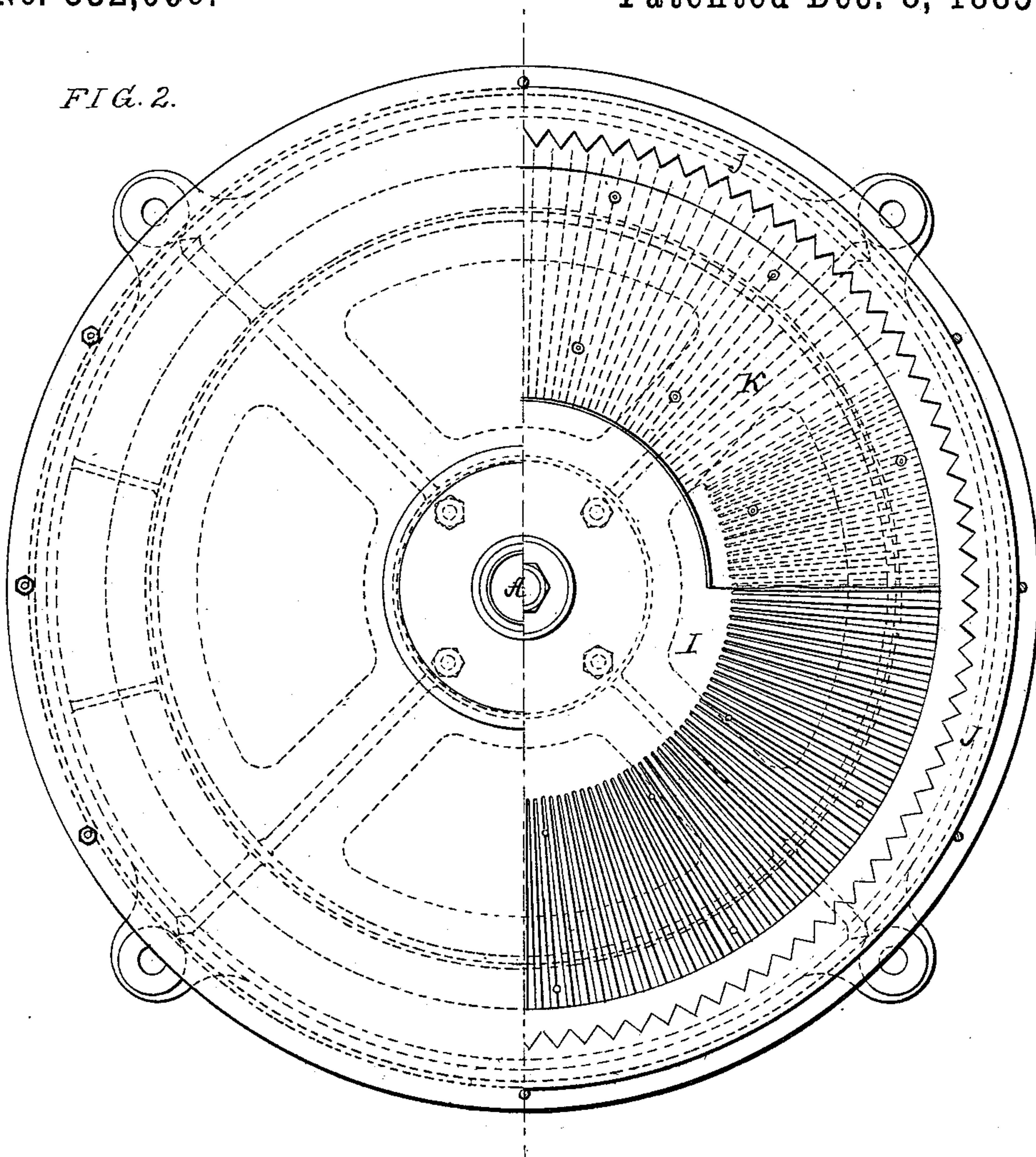


FIG. 6.

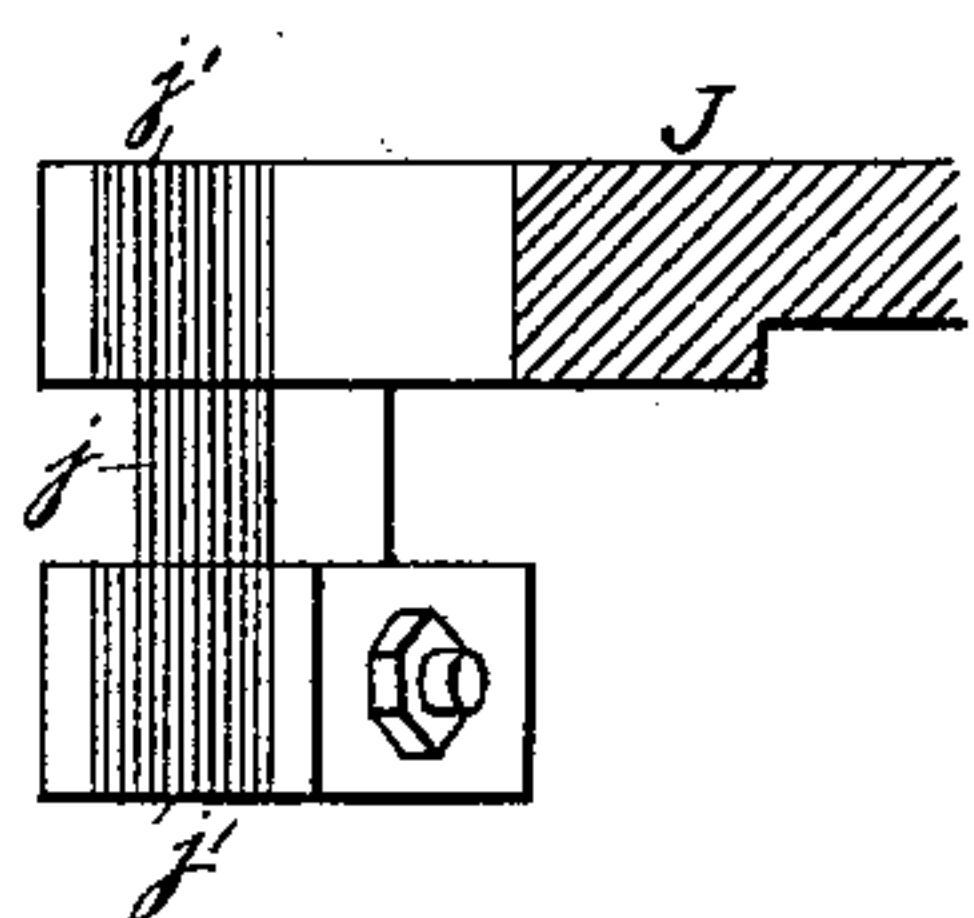
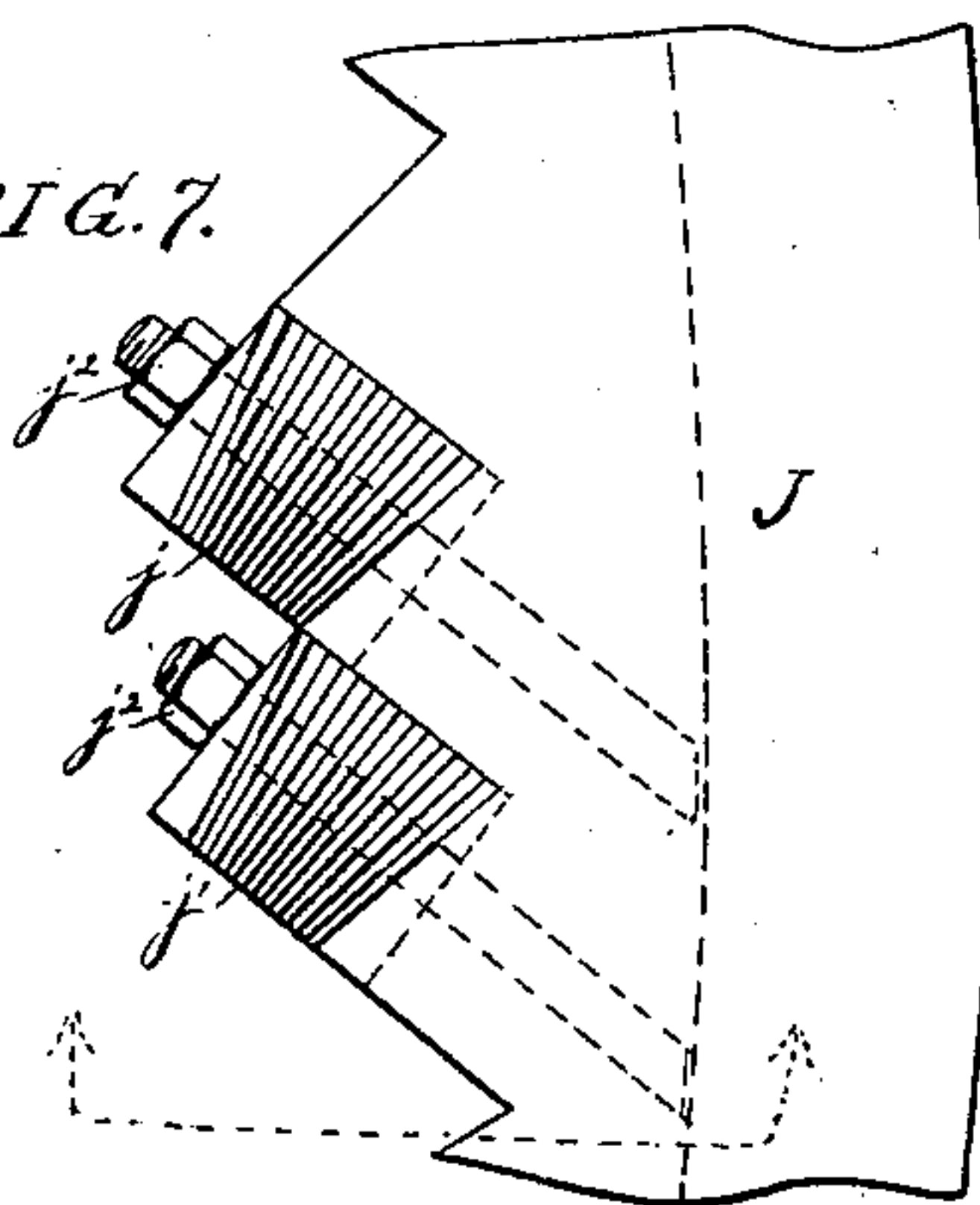


FIG. 7.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

HENRY FERDINAND SAINT REQUIER, OF ASNIÈRES, ASSIGNOR TO LA SOCIÉTÉ ANONYME POUR LES PROCÉDÉS BREVETÉS DE FARINERIE SAINT REQUIER, OF PARIS, FRANCE.

## MACHINE FOR THE REDUCTION OF GRAIN.

SPECIFICATION forming part of Letters Patent No. 332,006, dated December 8, 1885.

Application filed June 25, 1884. Serial No. 135,978. (No model.) Patented in France February 1, 1882, No. 147,163; in Germany February 11, 1882, No. 20,302; in Belgium March 31, 1884, No. 64,688; in England April 2, 1884, No. 5,837; in Italy April 12, 1884, No. 16,714; in Russia April 12, 1884; in Spain July 30, 1884, No. 6,168, and in Austria September 12, 1884, No. 21,527.

*To all whom it may concern:*

Be it known that I, HENRY FERDINAND SAINT REQUIER, a citizen of the Republic of France, and residing in Asnières, France, have invented certain Improvements in Machines for the Reduction of Grain, (for which I have obtained a certificate of addition dated March 24, 1884, to French Patent No. 147,163, dated February 1, 1882; a Belgian Patent No. 64,688, dated March 31, 1884; a British Patent No. 5,837, dated April 2, 1884; an Italian Patent No. 16,714, dated April 12, 1884; an Austrian Patent, No. 21,527, dated September 12, 1884; a German Patent, No. 20,302, February 11, 1882; a Spanish Patent, No. 6,168, dated July 30, 1884, and for which I applied for Russian Patent April 12, 1884,) of which the following is a specification.

My invention consists of certain improvements in the grain-reducing machine for which Letters Patent of the United States No. 277,790 were granted to me May 15, 1883, the present improvement relating more especially to the construction and mounting of the cutting-knives, securing the horizontal table or disk to the vertical spindle or shaft, and providing the said table or disk with an annular cover to revolve therewith, as fully described and claimed hereinafter.

In the accompanying drawings, Figure 1 is a vertical section of my improved machine. Fig. 2 is a plan view, partly in section, showing the rotary table, its cover, and the knife-ring. Fig. 3 is a sectional view, drawn to a larger scale, of a portion of the rotary table. Fig. 4 represents views of cutting-knives detached, drawn to a smaller scale than Fig. 3. Fig. 5 represents similar views of intermediate washers, also detached. Fig. 6 is a vertical section, drawn to a larger scale, of a portion of the knife-ring, and Fig. 7 is a corresponding plan view of a portion of the knife-ring and sets of knives.

N is the cylindrical casing or frame with the usual discharge-passages, M, forming part thereof, and to the top of this casing is bolted the cover N', with central conical portion, G, to the upper end of which is adapted the adjustable feed-spout D. Within the cone G is another cone, F, leaving an annular pas-

sage between the two for the supply of grain to the rotary table or disk. In the present instance I employ only one horizontal table or disk, I, instead of two, as in my former apparatus, and this disk is secured to the vertical driving-shaft or spindle through the medium of a sleeve, a. The upper end of the spindle A is made conical, and on this is firmly fitted the conical portion of the sleeve a, whose lower cylindrical portion is adapted to bearings in an oil-box, E, carried by the casing. The central opening in the hub of the disk I is made conical to fit over the outer conical surface of the sleeve a, and is firmly secured thereon by suitable nuts and washers adapted to the screwed end of the spindle A. This spindle is adapted at its lower end to the usual stepped bearing, H, and is provided with the driving-pulley B.

The upper surface of the table or disk I, onto which the grain falls, is provided with radial grooves, as described in my former patent; but instead of relying on the cover of the casing to retain the flying grain within the grooves I employ an annular cover, K, which is secured to the upper surface of the disk and therefore revolves with the latter, leaving passages for the grain along the grooves in the face of the said disk, as shown in Fig. 3. The inner rim of this annular cover is turned up or flared, so as to prevent the grain from escaping out over the top of the cover.

The sets of cutting-knives are in this case carried by a ring, J, which is clamped between the upper flanged rim of the cylindrical casing N and the cover N'. The knives j are arranged in tangential sets, as described in my former patent, and in this case are secured to the ring J by horizontal bolts and nuts j', spacing-washers j'', Fig. 5, being alternated with the knives. The latter project below the ring, as shown in Fig. 6, and the knives of each set are secured together at their lower ends with intermediate washers by means of bolts and nuts. The portions of the knives between the washers at top and bottom form the cutting portions, with free spaces between for the passage of the cut grain. The upper and lower ends of the knives are enlarged, as shown in Fig. 4, to give a large enough sur-

face for the formation of the holes for the bolts.

The operation of the machine described is substantially the same as that of my patented apparatus before referred to and will not need further explanation.

I claim as my invention—

1. The combination of the casing of a grain-reducing machine having a bearing-box, E, with a horizontal disk, and a vertical driving-spindle, A, carrying a sleeve adapted to said bearing-box and having a conical portion on which the hub of the said disk is secured, substantially as set forth.

2. The combination of the casing, the feed-spout, and a ring carrying cutting-knives, with a rotary grooved table in line with said knives

and carrying a cover, K, substantially as described.

3. The combination of the rotary table with a casing, N, and cover N', and the knife-ring J, secured between the said casing and cover, substantially as specified.

4. The combination of the knife-ring and knives having enlarged ends with spacing-washers and securing bolts and nuts, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

H. F. SAINT REQUIER.

Witnesses:

FR. JEUMONT,

ALFRED COINY.