May 22, 1923. 1,456,324

W. MAIER

CLUTCH

Filed Sept. 13, 1919 2 Sheets-Sheet 1

Fig. 1

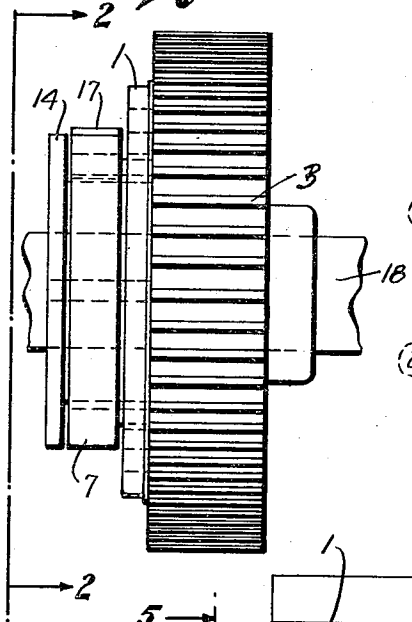


Fig. 2

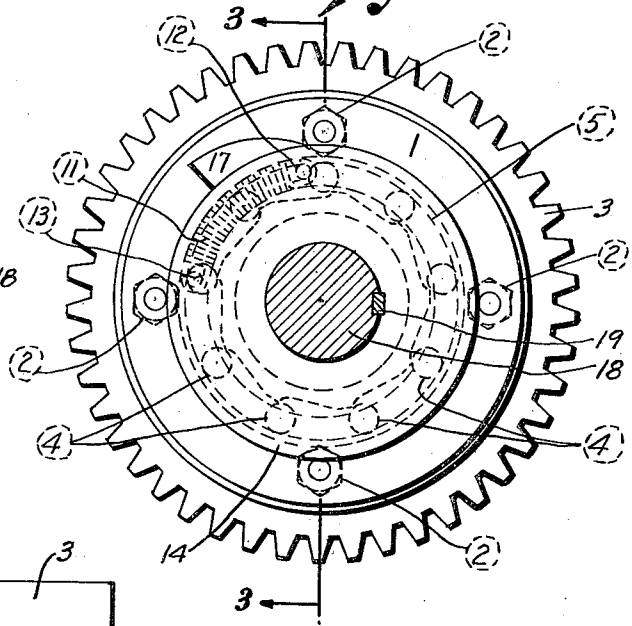
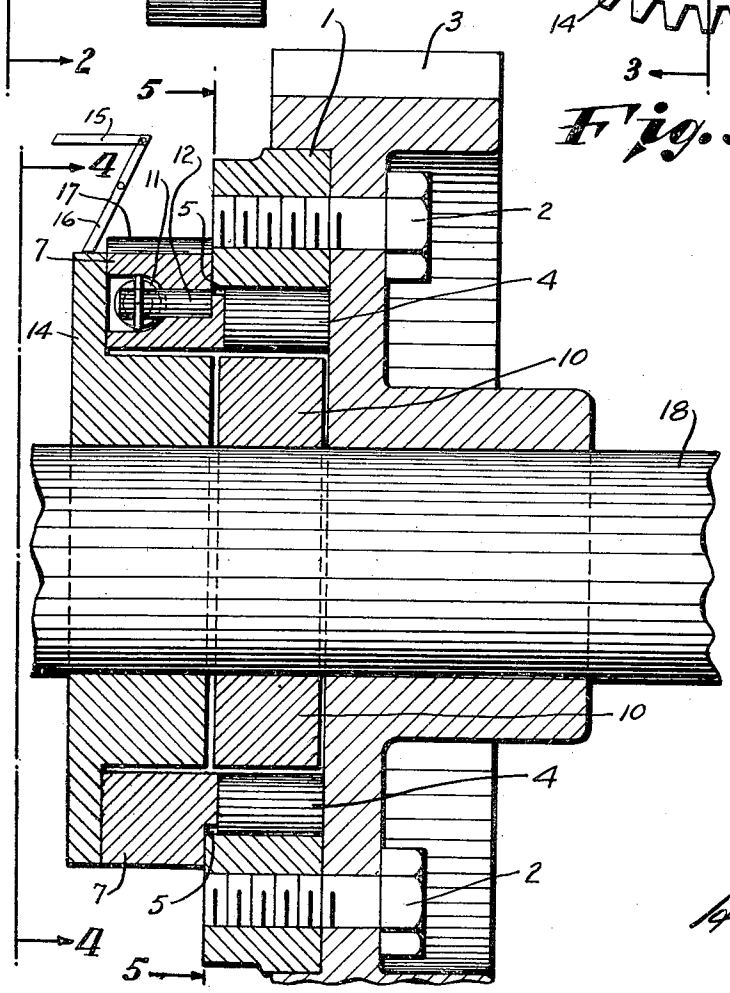


Fig. 3



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Fig. 4

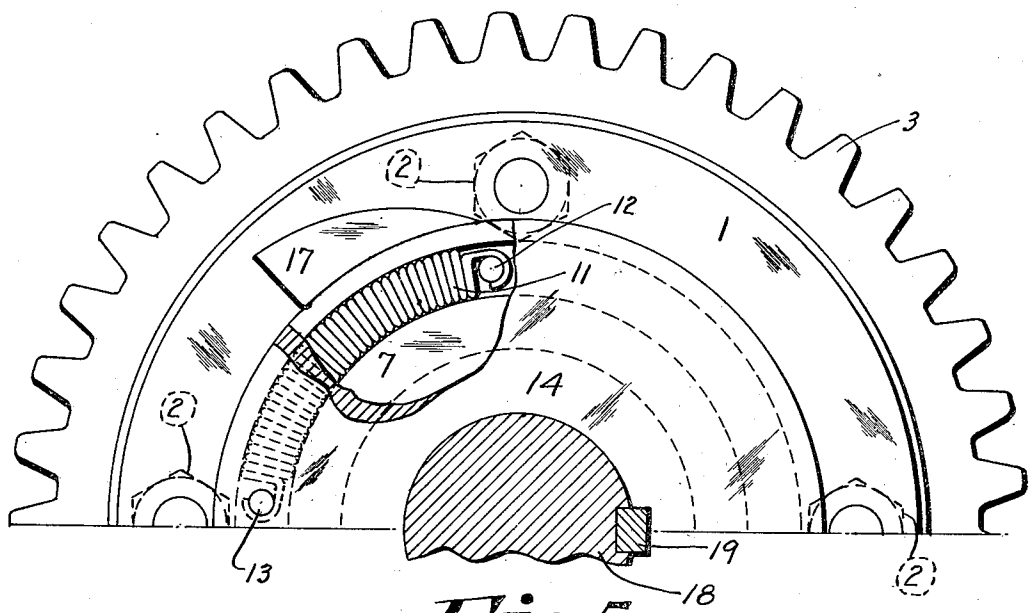
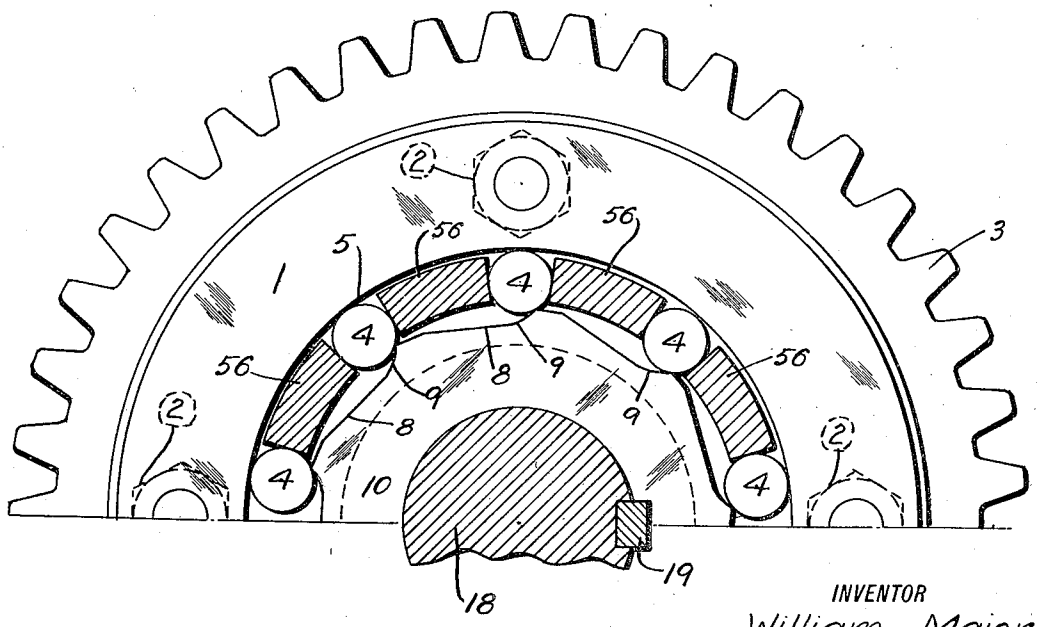


Fig. 5



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Patented May 22, 1923. 1,456,324

UNITED STATES PATENT OFFICE.

WILLIAM MAIER, OF ST. LOUIS, MISSOURI.

CLUTCH.

Application filed September 13, 1919. Serial No. 323,505.

To all whom it may concern:

Be it known that I, WILLIAM MAIER, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Clutches, of which the following is a specification.

This application is a continuation of an earlier as to all matters common to the two applications. That earlier application was given Serial No. 261,181 and has since resulted in the issuance of Patent No. 1,318,892 dated October 14, 1919.

This invention is an element of a machine adapted to cut off lengths of material from stock fed to a cutting machine, which is provided with knives or cutters. This machine is adapted to cut any kind of material such as metal, cloth, or paper, and is especially useful for cutting strawboard, pasteboard, plasterboard, container board, fiber board, chip board, corrugated paper, double-faced paper, paper tubes, felt, veneer, and the like.

In preparing articles for the market and blanks for boxes and lids that are selling in large numbers and of a standard size, or of standard sizes, it is necessary that the cutting shall be done by automatic machinery, and that each piece, when cut, shall be of size identical with its fellows. To accomplish this, an automatic feed, an accurately timed cutting operation, and an instantaneous release and continuation of feed are essential. To accomplish this last-mentioned effect is the purpose of the clutch more particularly herein described, illustrated, and claimed.

This clutch is adapted for use not only in cutting machines, but in any other kind of machinery, and its especial advantage is for use in machines where it is necessary or desirable that the clutch shall take hold and be released with great celerity.

In the accompanying drawings forming part of this specification, in which like numbers of reference denote like parts wherever they occur,

Figure 1 is a front elevation;

Figure 2 is a side elevation taken on the line 2—2 in Figure 1, looking in the direction indicated by the arrows;

Figure 3 is a sectional view on the line 3—3 in Figure 2;

Figure 4 is a side elevation on an enlarged scale, parts being broken away; and

Figure 5 is a similar view.

The above-mentioned clutch is constructed and operates as follows: A driving ring 1 is fastened by screws 2 to the driving gear 3. Rollers 4, located in the notches 5 and between legs 56 in the cage 7, are adapted to roll on the inclined edges 8 of the peripheral notches 9 in the driven disk 10, which disk 10 is located within an opening through roller-cage 7, adapted to hold the rollers 4 in notches 9. A spring 11 is attached by spring-post 12 to the cage 7 and by spring-post 13 to the clutch-disk 14. Cage 7 normally runs loose unattached to gear 3, but when the push of rod 15 upon rod 16 disengages the end of rod 16 from shoulder 17, spring 11 pulls cage 7 in one direction towards clutch disk 14, with the result that rollers 4 travel each one up its adjacent incline 8 on the peripheral edge of disk 10, with the result that each roller is thus forced into contact with the inner periphery of driving ring 1, thereby producing a wedging effect that causes clutch disk 14, driving ring 1, and roller-cage 7 to travel as one, thereby rotating shaft 18, because disk 10 and clutch-disk 14 are both keyed thereto by key 19, while driving ring 1 is attached by screws 2 to gear 3. Shoulder 17 is on the cage 7.

Having thus described this invention, I hereby reserve the benefit of all changes in form, arrangement, order, or use of parts, as it is evident that many minor changes may be made therein without departing from the spirit of this invention or the scope of the following claim.

I claim:

A clutch mechanism comprising a spur gear, of conventional form having a hub, a web extending therefrom and having a peripheral toothed portion which extends at right angles to said web on either side thereof, an annular member forming the immediate driving member of the clutch mechanism and having its peripheral surface closely fitting against the inner surface of the peripheral portion of said gear and abutting against the web of said gear, said annular member being detachably secured by means of bolts to said web, a driven shaft upon which the hub of said gear is rotatably mounted, an inner clutch ring keyed to said shaft adjacent to said web and having its periphery spaced from the inner surface of the first mentioned annular member, rollers positioned in said spaced, a cage for con-

trolling said rollers, a second ring keyed to said shaft on the other side of said inner clutch ring from said gear, said second ring presenting an annular shoulder toward said gear, said roller cage having an annular portion seated on said shoulder, parallel projections on said cage extending into the space between the first annular member and the inner clutch ring for positioning and controlling said rollers, an arcuate recess opening outwardly toward said second ring, a spiral spring located in said recess and resiliently connecting said second ring and said roller cage, and a manually controlled means for preventing said spring from causing said rollers to operatively engage said clutch member.

In testimony whereof I hereunto affix my signature.

WILLIAM MAIER.