Sept. 23, 1930. F. P. GLOSE 1,776,624

MACHINE FOR CUTTING AND CREASING BOX BLANKS

Filed April 12, 1926

FIG. 1.

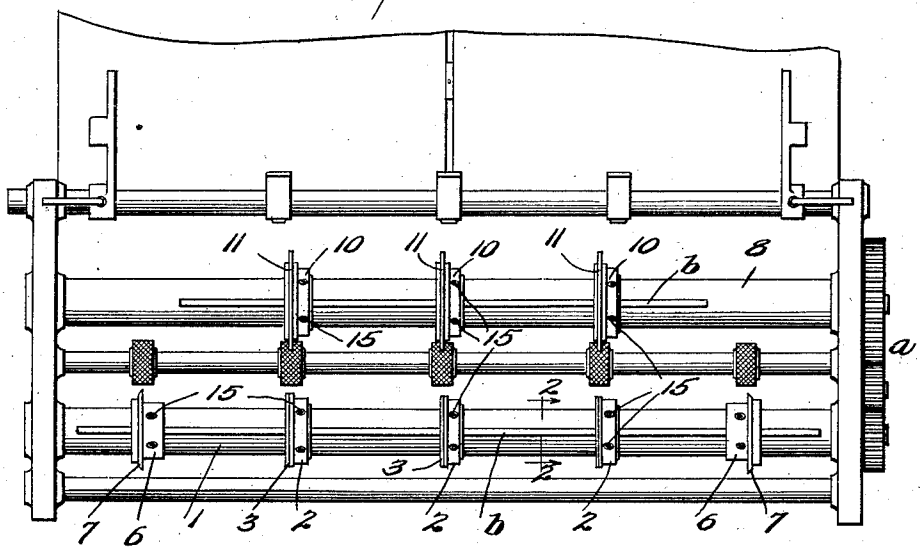
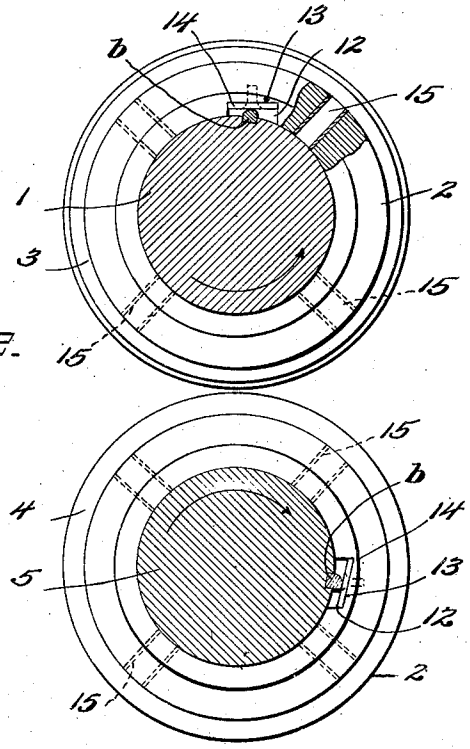


FIG. 2.



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UNITED STATES PATENT OFFICE

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MACHINE FOR CUTTING AND CREASING BOX BLANKS

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This invention relates to improvements in machines for cutting and creasing cardboard, and more particularly to means whereby the cutting and creasing heads may be readily clutched to their supporting shafts at any desired positions on the shafts.

In machines of this character, it is necessary to set the cutting and creasing heads in different positions on the shafts, for operating upon box blanks of different dimensions. Usually, the cutting and creasing heads, which are on two or more shafts in the machine, are secured to the shafts by set screws, and these are difficult to reach without turning the machine by hand to bring the screws into accessible positions; also, the cutting and creasing heads have to be set to precise positions on the shafts, and in turning the set screws to tighten them, the heads are apt to be moved slightly from their intended positions.

The purpose of my invention is to provide means, whereby the heads may be conveniently and accurately set and secured in any desired position on the shafts, without the use of set screws. In carrying out my invention, I provide a spline or key in each shaft long enough to be engaged by the several heads on the shafts, in the various working positions of the heads, and I provide in each head a recess through which the key extends, this recess having a surface inclined to the radial line passing through the key, whereby when the head is turned in one direction relatively to the shaft, the inclined surface will engage the key and clutch the head to the shaft, and when the head is turned in the opposite direction, relatively to the shaft, the head will become unclutched, and may then be moved along the shaft to any desired position. In order that the heads may be readily turned on the shafts, each head is provided with a series of radial holes so that in whatever position the shaft stops, one of the holes will be in a convenient position for receiving a bar or rod by which the head may be turned.

In the accompanying drawing,

Fig. 1 is a top plan view of part of a cutting and creasing machine embodying my improvements; and,

Fig. 2 is a section through an upper and lower shaft on the line 2—2 of Fig. 1.

In Fig. 1 of the drawing, *a* represents in plan view a part of a machine for cutting and creasing cardboard box blanks. As shown, the machine comprises an upper shaft 1, on which are adjustable heads 2, which carry circular creasing members 3, and these co-operate with creasing members 4 on a shaft 5 (Fig. 2) to crease the cardboard stock. Heads 6 near the ends of the shaft 1 carry trimming knives 7, for trimming the edges of the blanks, and it will be understood that these knives co-operate with other circular knives on the shaft 5. A shaft 8, geared to the shaft 1, carries adjustabe heads 10 on which are mounted the circular slitting knives 11, and these knives co-operate with similar knives on a shaft (not shown) below the shaft 8.

In the several shafts are arranged long keys or splines *b*, and the heads are provided with recesses 12 through which the keys extend. These recesses are cut outwardly from the inner peripheries of the heads, and the outer wall 13 of each recess is inclined with respect to a radial line passing through the key on the shaft on which the head is mounted. Flat wearing shoes 14, of hardened steel, are suitably secured against the walls 13 and are therefore also inclined with respect to radial lines passing through the keys.

Each circular head is also provided with a plurality of radial sockets 15, spaced at short intervals about its circumference and adapted to receive a rod or bar by which the operator may turn the head relatively to the shaft on which the head is mounted.

With the construction described, when it is

desired to adjust a cutter or creaser head on a shaft, the machine being stopped, the operator places a turning pin or bar in the socket 15 which is most convenient of access and turns the head in the direction in which the shaft turns when in operation, thereby releasing the wearing shoe 14 from the key in the shaft. The head may then be slid along the shaft to the desired point, and by then turning the head in the opposite direction, the shoe 14 will lock against the key and the head will be clutched to the shaft. When the machine is in operation, if the shaft 1 turns counterclockwise, as indicated by the arrow in Fig. 2, the key will be continuously forced against the inclined shoe, thus causing the head to be firmly clutched to the shaft. The lower shaft 5 turns oppositely to the direction of rotation of the shaft 1, and therefore the outer walls and the wearing shoes in the recesses of the heads on this shaft are inclined oppositely to the walls and shoes in the heads on the upper shaft.

It will be understood that the heads on the shaft 8 are provided with recesses and wearing shoes corresponding to those on the shaft 1, and that the heads on the shaft below the shaft 8 (not shown) will have recesses corresponding to those in the heads on the shaft 5.

The length of the key on each shaft is such as to cover the entire length of adjustment of the heads on that shaft. Thus, each key is common to a plurality of heads and the heads may be accurately adjusted to any desired positions on the shaft without the use of set screws. By providing a plurality of radial holes in the heads one hole in each head will be accessible to the operator in whatever position the shafts may be when the machine stops. By the structure described, much time can be saved in the adjustment in the heads for operating upon different sizes of box blanks.

What I claim is:

1. In a machine for cutting and creasing box blanks, a shaft, a relatively long key on the shaft, and a plurality of circular heads axially movable on the shaft to various working positions, said key extending throughout the range of working positions of the several heads, each head having a notch through which the key extends, each notch having a surface, inclined with respect to a radial line passing through the key, adapted to engage and bind upon the key, and each head having means whereby a bar, for moving the head, may be interlocked with the head at a plurality of circumferentially spaced points.

2. In a machine for cutting and creasing box blanks, a shaft, a relatively long key on the shaft, and a plurality of circular heads axially movable on the shaft to various working positions, said key extending throughout the range of working positions of the several heads, each head having a notch through which the key extends, each notch having therein a hardened shoe the face of which is inclined with respect to a radial line passing through the key and adapted to engage and bind upon the key, and each head having means whereby a bar, for moving the head, may be interlocked with the head at a plurality of circumferentially spaced points.

In testimony whereof I hereunto affix my signature.

FREDERICK P. GLOSE.