April 6, 1926. 1,579,738

G. W. SWIFT, JR

CREASING MACHINE

Filed July 29, 1925 3 Sheets-Sheet 1

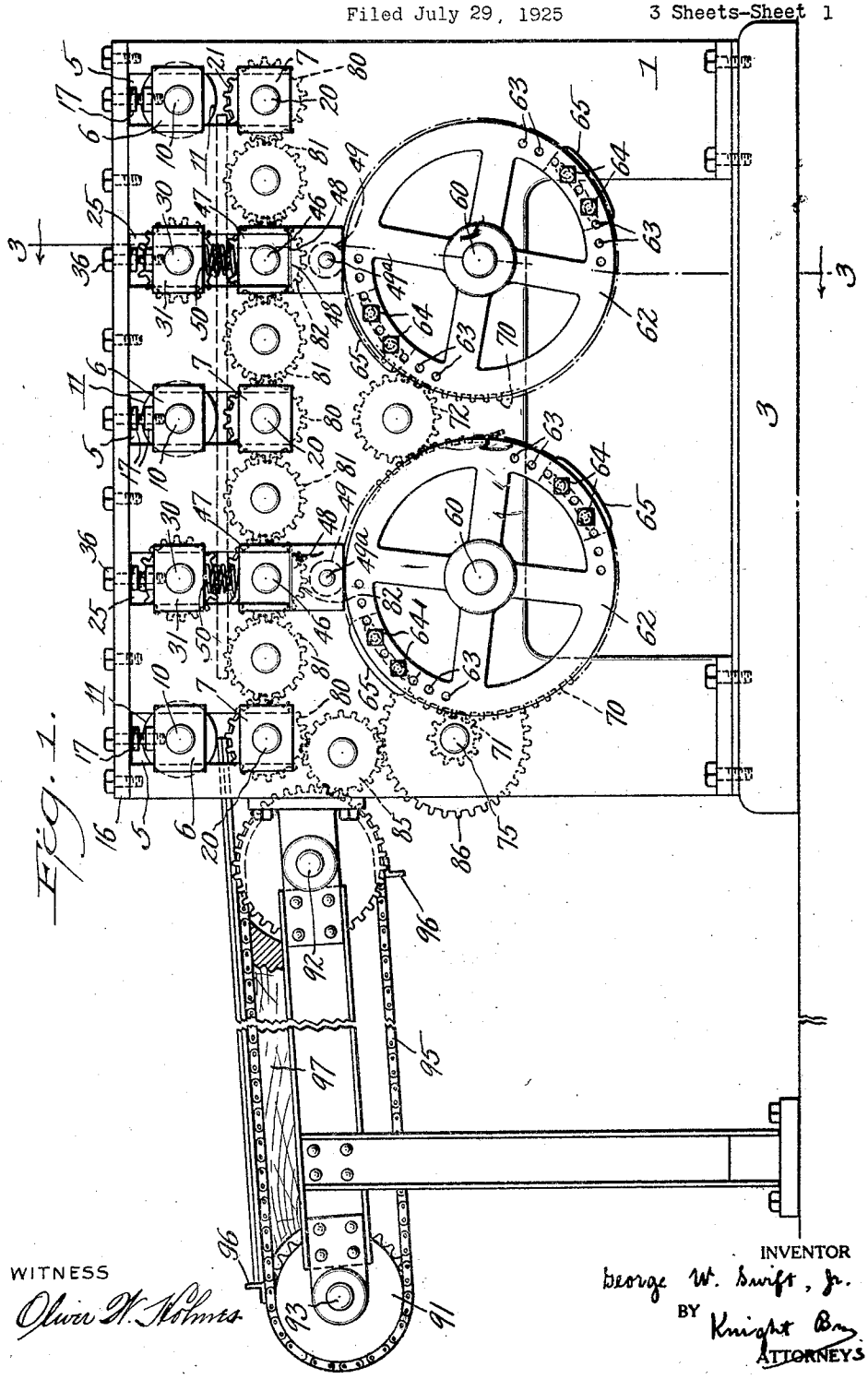


Fig. 1.

WITNESS

Oliver W. Holmes

INVENTOR

George W. Swift, Jr.

BY Knight Bros.

ATTORNEYS

April 6, 1926. 1,579,738

G. W. SWIFT, JR

CREASING MACHINE

Filed July 29, 1925 3 Sheets-Sheet 2

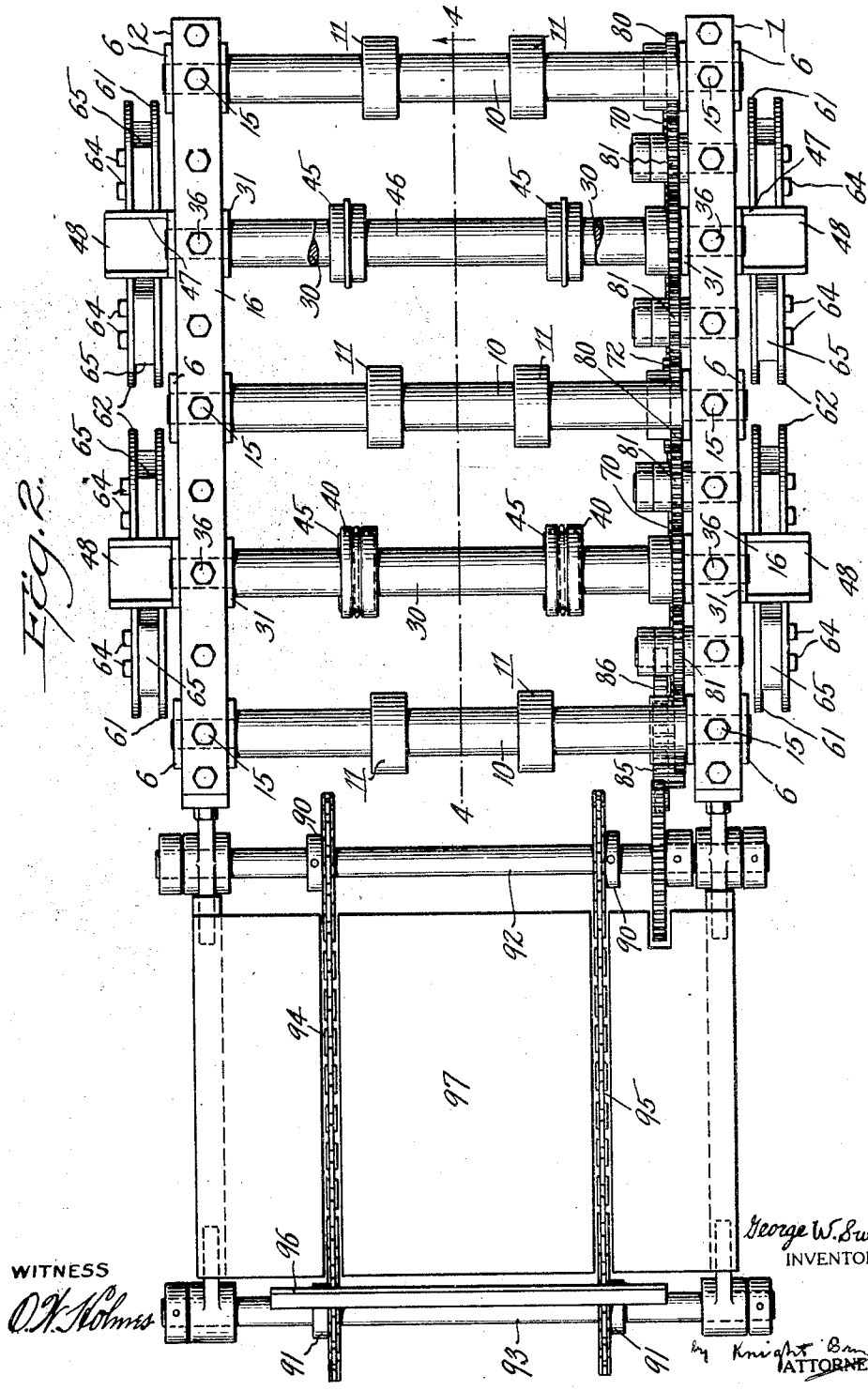


Fig. 2.

WITNESS

O. F. Holmes

George W. Swift Jr.
INVENTOR

by Knight Bros
ATTORNEYS

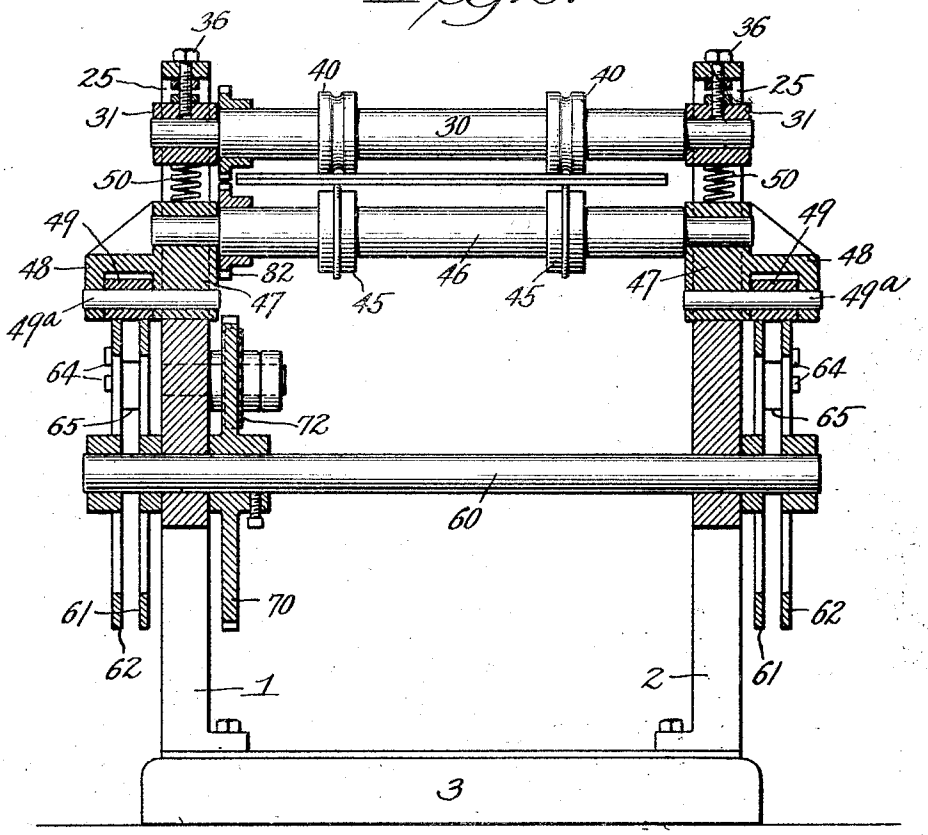
April 6, 1926. 1,579,738

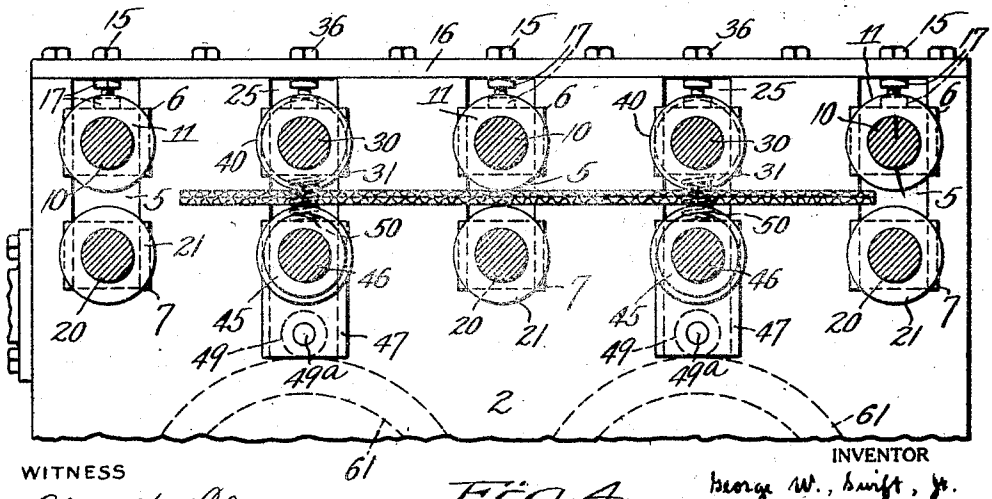
G. W. SWIFT, JR

CREASING MACHINE

Filed July 29, 1925 3 Sheets-Sheet 3

Fig. 3.





WITNESS

Oliver W. Holmes.

Fig. 4.

INVENTOR

George W. Swift, Jr.

BY Knight Bros.

ATTORNEYS

Patented Apr. 6, 1926. 1,579,738

UNITED STATES PATENT OFFICE.

GEORGE W. SWIFT, JR., OF BORDENTOWN, NEW JERSEY, ASSIGNOR TO GEORGE W. SWIFT JR. INC., OF BORDENTOWN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CREASING MACHINE.

Application filed July 29, 1925. Serial No. 46,796.

To all whom it may concern:

Be it known that I, GEORGE W. SWIFT, Jr., a citizen of the United States, and resident of Bordentown, county of Burlington, and State of New Jersey, have invented certain new and useful Improvements in Creasing Machines, of which the following is a specification.

The object of the present invention is to produce a simple and effective machine for creasing or scoring box blanks and particularly those formed of heavy paper board or the well known corrugated board. The improved machine is particularly designed for producing staggered or offset scoring in heavy box blanks so as to facilitate the folding of the blanks without unduly straining the folded corners of the box.

To this end the present invention comprises a creasing machine having two or more sets of cooperating creasing rolls which are arranged in different parallel longitudinal planes to produce offset or staggered creases or scores in a box blank, said creasing rolls being normally out of action and under the control of rotating cams which periodically move them into creasing or scoring position. The controlling cams are preferably adjustable to effect both the time and duration of the creasing or scoring operation upon the blanks. The machine is also preferably provided with suitable feeding mechanism for conveying box blanks past the offset creasing mechanism.

In order that the invention may be fully understood it will first be described with reference to the accompanying drawings and afterwards pointed out more particularly in the annexed claims.

In said drawings:

Figure 1 is a side elevation of the improved creasing or scoring machine;

Figure 2 is a plan view of the same;

Figure 3 is a vertical transverse sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a detail vertical longitudinal sectional view taken on the line 4—4 of Figure 2, the feeding mechanism being omitted.

The improved machine is suitably mounted in a heavy frame such as illustrated in which side frames 1 and 2 are mounted upon and project upwardly from base 3.

These side frames 1 and 2 are vertically slotted at 5 to receive the journalled boxes 6 and 7 of three pairs of feed rollers, each pair consisting of upper and lower feed rolls of the same character so that a description of one will suffice for all. Carried in the upper journalled boxes 6 are the upper feed shafts 10 carrying upper feed rolls 11. These journalled boxes 6 are adjustably supported in fixed position by means of screw bolts 15 passing through the cap plates 16 and threaded into journalled boxes 6. Lock nuts 17 are threaded upon the bolts 15 for securing them in the desired adjusted position.

A lower feed shaft 20 is journalled in the lower boxes 7 and supports the lower feed rolls 21 which are arranged in the same vertical longitudinal planes as upper rolls 11 so as to cooperate therewith in feeding box blanks through the machine.

Side frames 1 and 2 are also formed with vertical slots 25 arranged midway between slots 5 above referred to to receive the journalled boxes of the upper and lower creasing members which will now be described. Thirty is the upper creasing shaft freely journalled at its ends in the vertically adjustable box 31 mounted in the slots 25 and held in the desired adjusted position by means of screw bolts 36 passing through the cap plates 16 and threaded in the boxes 31. The creasing shaft 30 carries the upper creasing rolls 40.

Cooperating with upper creasing rolls 40 are the lower creasing rolls 45 mounted upon the shaft 46 journalled in lower bearing boxes 47 also mounted in slots 25 of the side frames. Heavy springs 50 are mounted in slots 25 between the upper and lower journalled boxes 31 and 47 and yieldingly hold the boxes 47 in the bottom of slots 25 with upper and lower creasing members separated so as not to crease or score a blank passing between them.

The lower journalled boxes 47 are formed with outwardly projecting brackets 48 forming housings to receive anti-friction rollers 49 which are freely journalled upon pins 49ª mounted in the boxes 47.

Freely journalled in the side frames directly beneath the creasing shafts 30 and 46 is a cam shaft 60 carrying upon its opposite ends the spaced wheel members 61, 62, between which are adjustably mounted the segmental cam plates 65. These wheel members 61, 62 are formed with diametrically

opposite series of perforations 63 to receive screw bolts 64 which pass through suitable openings in said cam segments 65 to secure the latter in the desired adjusted positions upon wheel members 61, 62 to cause them to periodically engage anti-friction rollers 49 and raise boxes 47 carrying lower creasing members 45 into creasing relation with upper members 40.

It will be observed that the machine illustrated in the drawing is provided with two creasing or scoring mechanisms, each one of which is arranged between two sets of feed rollers such as above described. The shafts 60 carrying the adjustable cams just described are provided with gears 70, one of which is driven by pinion 71 on the main power shaft 75, while the other is driven through the idler 72 intermeshing with gears 70. By this means the creaser controlling cams are driven in unison.

The creaser carrying shafts 30 and 46 and both sets of creasing mechanisms, as well as the lower feed shafts 46, are driven by an intermeshing train of gears 80, 81 and 82, which train is driven through the gear 85 meshing with a gear 86 upon the main driving shaft 75.

A machine is shown with a chain feed mechanism for carrying box blanks into the bite of the first set of feed rollers. This feed mechanism comprises sprocket wheels 90, 91 spaced upon shafts 92, 93 journalled in a suitable frame and carrying upon the sprocket wheels the sprocket chains 94, 95 upon which are mounted the transverse feed bars 96 which pass over the feed table 97 for taking successive box blanks supplied to the table either automatically or by hand and moving them into the creasing machine.

The creasing rolls of the first said mechanism are offset longitudinally of the machine with regard to the creasing rolls of the second creasing mechanism. The creases or scores made by these mechanisms will therefore be offset upon the box blanks. The creasing rolls rotate continuously in spaced relation so that normally no impression will be made upon a box blank. The controlling cams are adjusted to periodically throw the creasing mechanisms into action with the result that the blanks passing through the machine will have the offset creases or scores impressed upon them.

I claim:—

1. In a machine of the character described, the combination with a plurality of successively acting creasing mechanisms arranged in offset longitudinal parallel planes, of means for periodically throwing said mechanisms into and out of action.

2. In a machine of the character described, the combination with a plurality of successively acting creasing mechanisms arranged in offset longitudinal parallel planes, of means for periodically throwing said mechanisms into and out of action, and means for feeding blanks to said mechanisms.

3. In a machine of the character described, the combination with successively acting pairs of creasing rolls arranged in parallel longitudinal planes, of operating means intermittently throwing said rolls into and out of action.

4. In a machine of the character described, the combination with successively acting continuously rotating pairs of creasing rolls arranged in offset parallel longitudinal planes, and controlling means arranged to periodically cause said rolls to approach and separate from each other.

5. In a machine of the character described, the combination with the successively acting pairs of creasing rolls arranged in offset parallel longitudinal planes, of controlling cam mechanism for periodically moving one of each pair of rolls toward its companion roll.

6. In a machine of the character described, the combination of suitable blank feeding mechanism, with upper and lower creasing shafts each carrying creasing rolls, and the creasing rolls of one pair of shafts being offset laterally from the rolls of the other pair of shafts, means for maintaining said shafts in separated relation for free passage of blanks, and cam mechanism arranged to periodically move one shaft of each pair toward its companion shaft for producing offset creases in blanks.

7. In a machine of the character described, the combination of suitable blank feeding mechanism, with upper and lower creasing shafts each carrying creasing rolls, and the creasing rolls of one pair of shafts being offset laterally from the rolls of the other pair of shafts, means for maintaining said shafts in separated relation for free passage of blanks, and cam mechanism arranged to periodically move one shaft of each pair toward its companion shaft for producing offset creases in blanks, each of said controlling cams comprising a wheel member, a cam segment and means for adjustably mounting the cam segment upon the wheel member.

GEORGE W. SWIFT, JR.