

H. J. DOUGLASS.
FEEDING MECHANISM.
APPLICATION FILED JAN. 31, 1910.

1,022,581.

Patented Apr. 9, 1912.
3 SHEETS—SHEET 1.

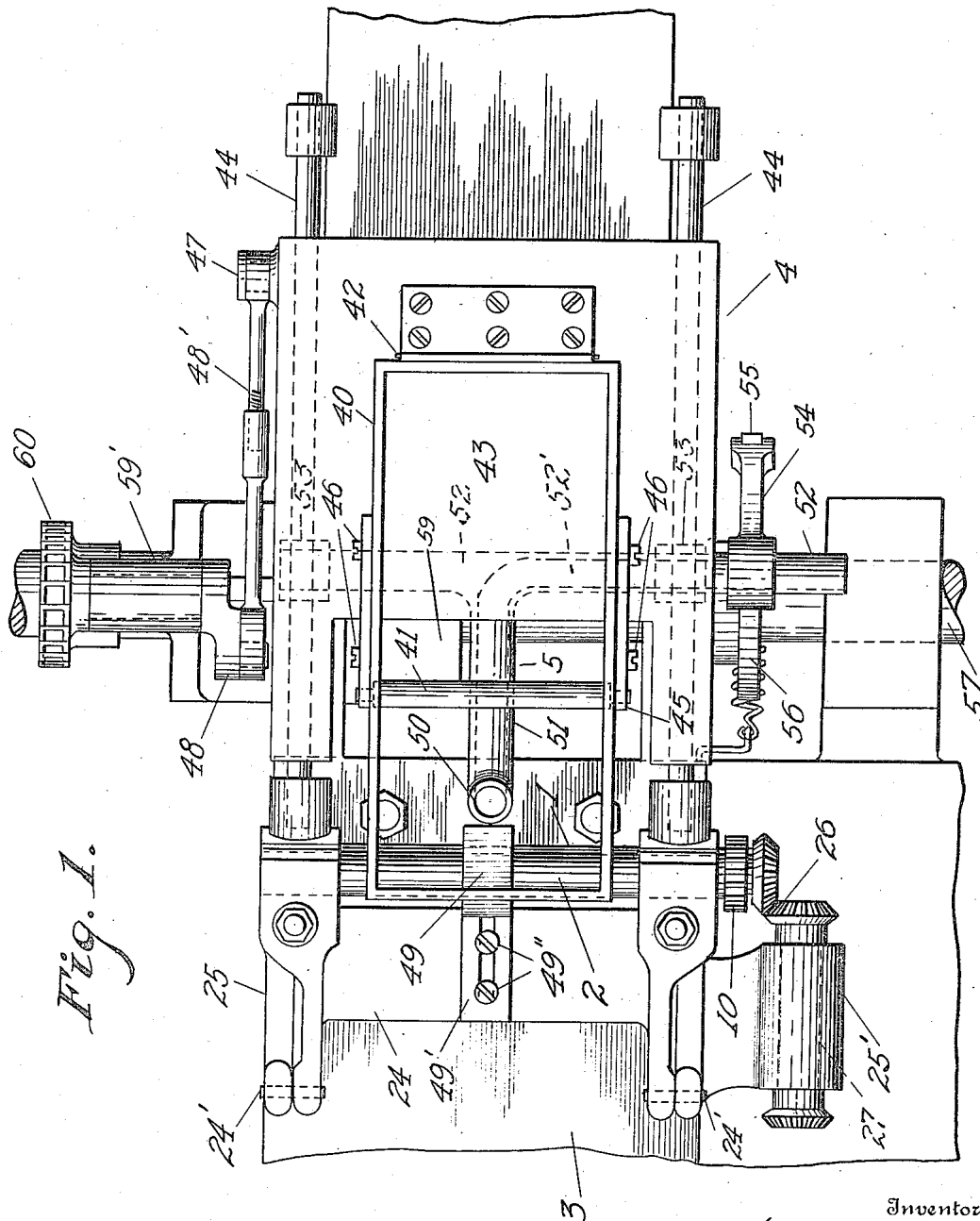


Fig. 1.

Witnesses

E. W. Cressman.
J. C. Spruell.

By

Inventor
Harry J. Douglass.
Adams & Brooks
Attorneys

H. J. DOUGLASS.
FEEDING MECHANISM.
APPLICATION FILED JAN. 31, 1910.

1,022,581.

Patented Apr. 9, 1912.

3 SHEETS—SHEET 2.

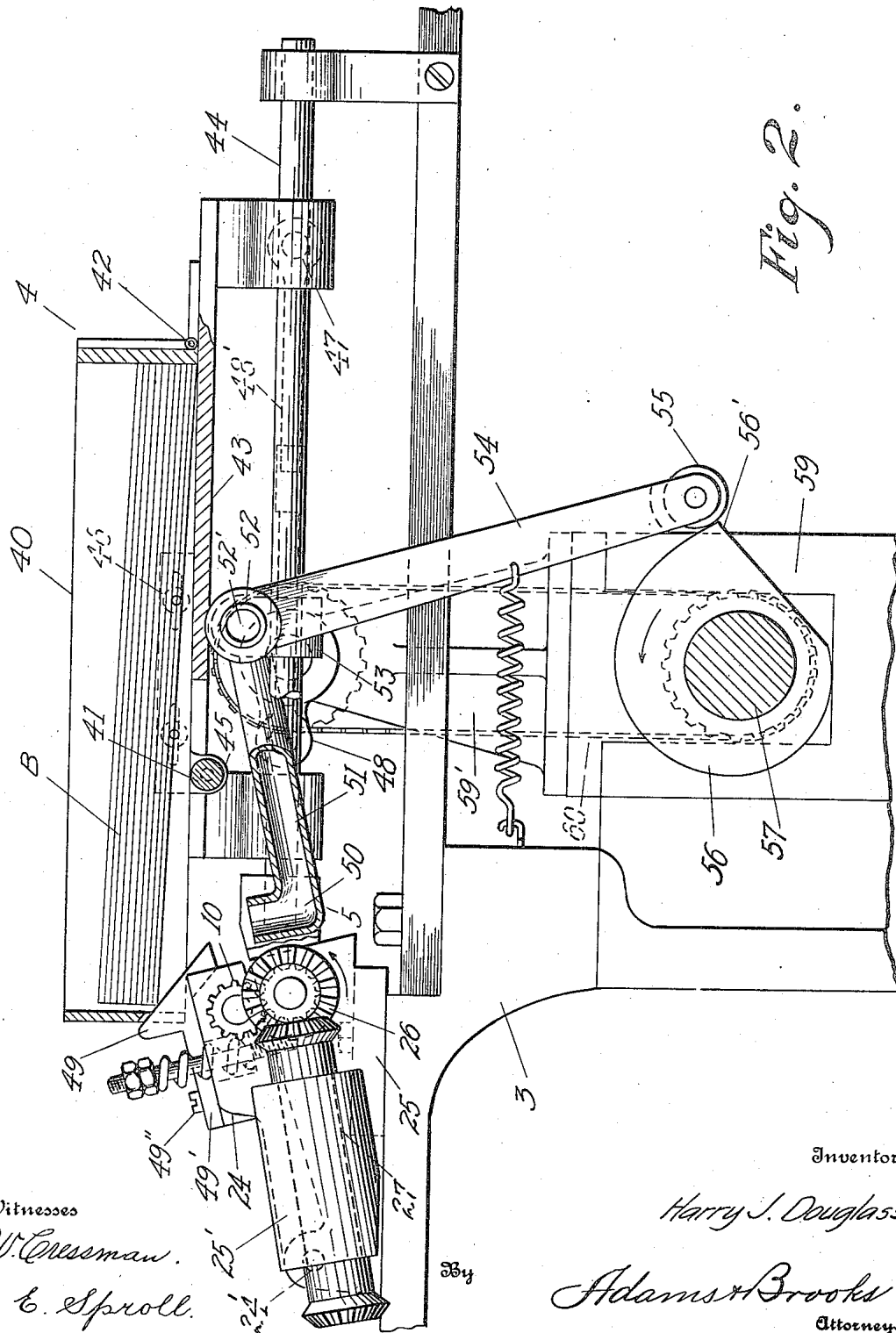


Fig. 2.

Witnesses
E. W. Cressman.
J. C. Sproll.

Inventor
Harry J. Douglass.
Adams & Brooks
Attorneys

H. J. DOUGLASS.
FEEDING MECHANISM.
APPLICATION FILED JAN. 31, 1910.

1,022,581.

Patented Apr. 9, 1912.

3 SHEETS—SHEET 3.

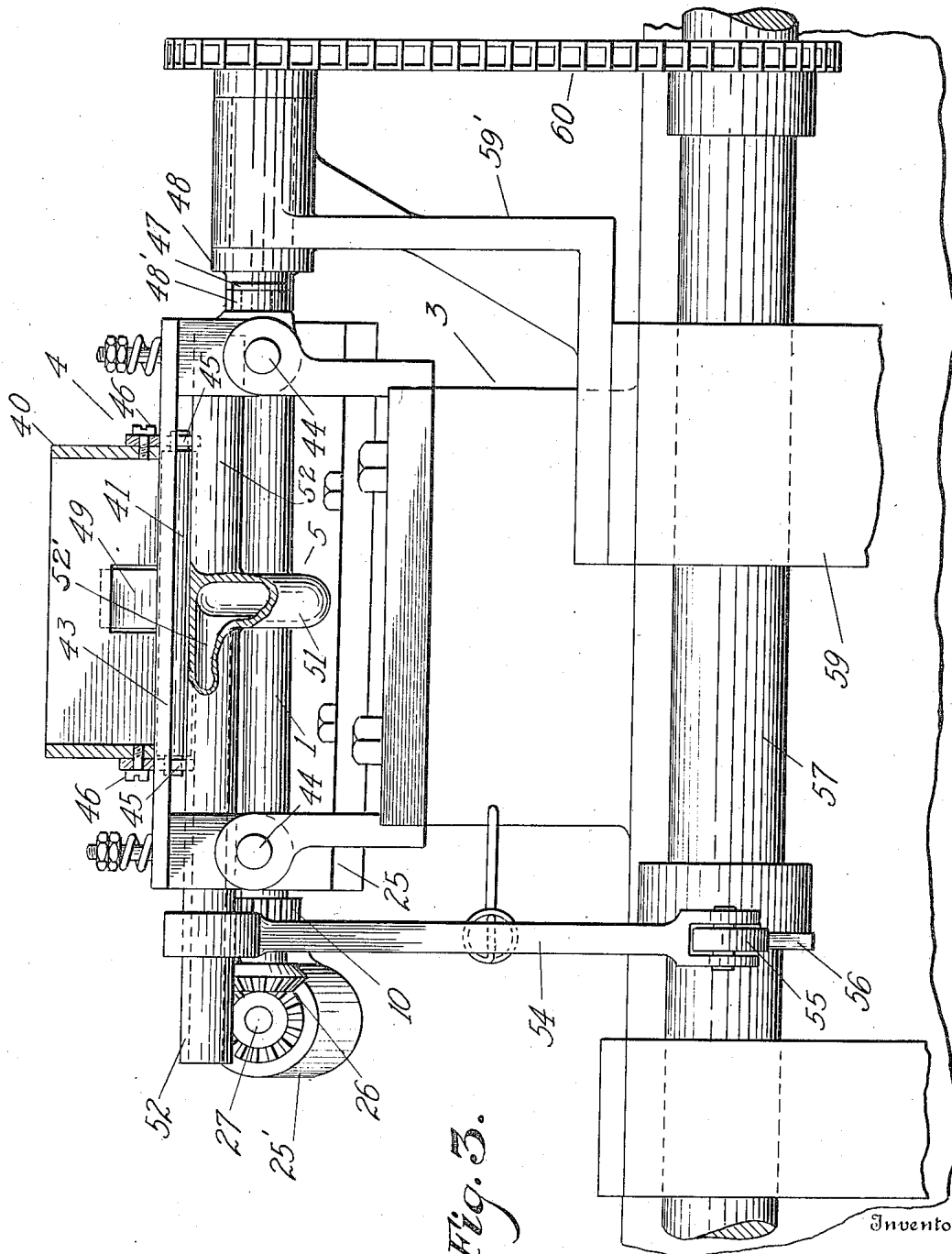


Fig. 3.

Witnesses

E. W. Cressman.
J. C. Sproll.

By

Harry J. Douglass.

Adams & Brooks
Attorneys

UNITED STATES PATENT OFFICE.

HARRY J. DOUGLASS, OF BELLINGHAM, WASHINGTON.

FEEDING MECHANISM.

1,022,581.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed January 31, 1910. Serial No. 541,199.

To all whom it may concern:

Be it known that I, HARRY J. DOUGLASS, a citizen of the United States of America, and a resident of the city of Bellingham, in the county of Whatcom and State of Washington, have invented certain new and useful Improvements in Feeding Mechanism, of which the following is a specification.

My invention relates, in particular, to mechanism for feeding blanks successively to forming machines, and the primary object thereof is the provision of simple and efficient apparatus for effecting such actions with respect to sheet blanks for can-forming machines.

The invention resides in certain novel features in the constructions, combinations and arrangements of parts as set forth in the following description and defined in the appended claims.

In the accompanying drawings, wherein like reference characters designate corresponding parts throughout: Figure 1 is a plan of my improved mechanism in such form as now preferred by me. Fig. 2 is a side elevation thereof with portions of some of the parts broken away, and Fig. 3 is a rear end elevation in partial section.

The invention comprises means for reciprocating blanks in a mass, means for diverting blanks successively from the mass, and means for forwarding the blanks diverted.

The forwarding means herein shown comprises rollers 1 and 2 connected by spur gears 10 and applied in conjunction with the reciprocator 4 and the diverting means 5, to the frame, as 3, of the forming machine. The reciprocator as shown, comprises a rectangular frame or container 40, adapted to receive the blanks, as B, flatwise, the same being hinged, as at 42, to a rear bottom section 43, slidably mounted on guides 44 secured to frame 3.

41 designates a bearing roller for the blanks conveniently mounted on hangers 45 having angular extensions provided with suitable slots receiving clamping bolts 46 seated in the side walls of frame 40, whereby, when said bolts are loosened, the

hangers may be shifted to adjust the roller longitudinally of the frame, as may be desired.

The means for diverting the blanks is conveniently in the form of a pneumatic device comprising a vacuum cup 50 secured to a tubular extension or arm 51 of a rock shaft 52, which latter is provided with a connecting passageway 52' extending to one end of the shaft for communication with an air pump or the like through the medium of a suitable connecting means not shown. Shaft 52 is mounted in fixed bearings 53 on the guides 44 and secured to a spring-retracted arm 54 having a wiper 55 which is engaged with a one-throw cam 56 secured to the drive shaft 57 of the forming machine, which shaft is driven in the direction indicated by the arrow in Fig. 2.

For operating the reciprocator 4 I have shown a crank 48 journaled in bracket extension 59' of the bearing 59 of shaft 57 and connected with said shaft, for relative rotation at a ratio of one to one and with the heel 56' of cam 56 at a lag of substantially 180 degrees relatively to the pin of the crank, by link belt gearing, as 60. This crank is connected by means of a rod 48' with a wrist pin 47 secured to bottom section 43 of the reciprocator.

49 designates means for adjusting the mass of blanks to relieve the diverted blank, the same as shown consisting of an inclined deflector extending into the path of the reciprocator and provided with a slotted stem 49' engaged by clamping bolts 49'' seated in a spring-pressed yoke 24 which is hinged as at 24' to a similar yoke 25 secured to frame 3.

Roller 2 is journaled in yoke 24 while roller 1 is journaled in yoke 25 and connected by means of gears 26 with a drive shaft 27 which is mounted in a bearing 25' of yoke 25 and connected by suitable means, not shown, with shaft 57 for operation to drive the rollers 1 and 2 at suitable speed to forward the blanks advanced thereto clear of the path of the vacuum cup as will be understood.

In operation, frame 40 moves back and

forth with its guided bottom section 43, under action of crank 48, while cup 50 moves toward and from the path of the frame responsively to movements of arm 54 under action of its spring and cam which operate conjointly to apply the cup to draw down the forward portion of the lower blank clear of the path of the frame, during its retractive movement, and retain such portion in lowered position during forward movement thereof, which forward movement advances the diverted blank over the cup to the forwarding rollers 1 and 2 and moves the remaining blanks upwardly on deflector 49, which action serves to overcome adhesion between the tins.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States of America, is:

1. A feeding mechanism comprising means for supporting blanks in superimposed relation for reciprocatory movement, means at the side of the path of said first means for diverting the blanks thereon successively, means for removing the diverted blanks from said first means, and means for operating said first means to advance the deflected blanks to said last-named means.

2. A feeding mechanism comprising a reciprocatory container for the blanks, means for operating said container, a diverter supported below said container for movement to and from the path thereof for diverting the blanks successively from their normal path of travel, means for operating said diverter, means for forwarding the diverted blanks, and means arranged to engage the upper blanks and lift the same during movement of said container.

3. A feeding mechanism comprising a reciprocatory container for the blanks, means for operating said container, a diverter supported below said container for movement to and from the path thereof for diverting the blanks successively from their normal path of travel, means for operating said diverter, means for forwarding the diverted blanks, and means arranged to engage the upper blanks and lift the same during movement of said container; said last means lying adjacent one end of the path of said container and having an inclined upper guiding face.

4. A feeding mechanism comprising means for supporting blanks in superimposed relation for movement, means for operating the same, a forwarding means at one side of said first means consisting of a pair of rollers, and means for engaging the blanks in said first means at one end portion for holding the same for movement between said rollers.

5. A feeding mechanism comprising means for supporting blanks in superimposed relation for reciprocatory movement, a forwarding means at one side of said first means, a vacuum gripping device supported for movement to and from said first means for successively diverting the blanks thereon, means for operating said device to grip and divert the blanks, and means for operating said first means to convey the diverted blanks to said forwarding means.

6. A feeding mechanism comprising means for supporting blanks in superimposed relation for movement, said means comprising a slidably supported bottom section and an upper section of open form hinged thereto, means for operating said first means, a forwarding means at the under side of said first means, an engaging device supported beneath said first means for movement to and from the blanks thereof, and means for operating said device for engaging and diverting the blanks successively to said forwarding means.

7. In a feeding mechanism the combination with means for diverting and forwarding blanks, of a support, a conveyer for a supply of blanks mounted on said support for movement to and from said diverting means, and an adjusting device arranged for operation during movement of said conveyer to adjust the mass of blanks and thereby relieve the blank diverted by said diverting means.

8. In a feeding mechanism, the combination with means for diverting and forwarding blanks, of a conveyer for a supply of blanks supported for reciprocatory movement to present the blanks for operation of said diverting and forwarding means, and a device arranged in the path of said blanks to adjust the mass of blanks from one diverted by said diverting means.

9. In feeding mechanism, a carrier supported for reciprocatory movement for conveying a supply of blanks, a diverter supported for deflecting the blanks on said carrier successively, means controlling said diverter to deflect blanks during one stroke of said carrier, and mechanism arranged to engage a deflected blank and hold the same against movement with said carrier.

10. In feeding mechanism, a carrier supported for reciprocatory movement for conveying a supply of blanks, a holding mechanism adjacent one end of the path of said carrier, means for reciprocating said carrier, and a device arranged in the path of said blanks to divert the same successively during movement of said carrier for movement by the latter to said holding mechanism.

11. In feeding mechanism, a carrier supported for reciprocatory movement for con-

veying a supply of blanks, a holding mechanism adjacent one end of the path of said carrier, means for reciprocating said carrier to advance the deflected blanks to said holding means, a device arranged in the path of said blanks to divert the same successively to said holding mechanism during movement of said carrier, and a device arranged

in the path of said blanks to adjust the mass to relieve a deflected blank thereof.

Signed at Bellingham, Wash. this 18 day
of January 1910.

HARRY J. DOUGLASS.

Witnesses:

R. AMUNDSON,
ROY WEAVER.